REPORT

ON THE

Enquiry into the Rise of Prices in India

By K. L DATTA, M A.
(Fellow of the Royal Statistical Society)

AND

A Resolution of the Government of India reviewing the Report.

VOLUME I

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CALCULATION OF THE AMOUNT OF RUPEES IN ACTUAL CIRCULATION YEAR BY YEAR—

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Resolution of the Government of India in the Finance Department. No. 1614-F. Accounts and Finance—Miscellaneous, dated Simla, the 24th October 1914.

THE rise in prices in India, though in evidence from an earlier date, began to attract general notice from about the year 1907. In 1910 the Government of India decided to undertake a full and detailed investigation of the problem, and the task was entrusted to Mr. Datta, a senior and experienced officer of the Finance Department, assisted by Mr. Findlay Shirras, late professor of Economics of the Dacca College, and Mr. S. D. Gupta of the Finance Department. Mr. Datta was instructed to tour throughout British India, to collect and analyse the relevant statistics, to ascertain the views of both the official and non-official community, and to report his conclusions to the Government of India. The specific points referred for investigation were :—

(1) What has been the actual rise in prices in India during the past fifteen years? Has the rise affected all commodities alike or is it specially marked in the case of food grains? Are there marked differences in respect of enhancement of prices as between different areas?

(2) To what extent is the rise in prices due to what may be styled "world factors," and how far may it be ascribed to local conditions?

(3) Does it appear that the rise is a permanent feature or is it only temporary?

(4) If it be more or less permanent, what are its probable economic effects on the country as a whole, and on the different sections of the community?

2. Mr. Datta was placed on special duty in 1910. His report was received in 1913, and the complete subsidiary volumes of statistics, on which it is based, were finally ready by April 1914. The Government of India desire to place on record their appreciation of the care and industry which Mr. Datta and his assistants brought to bear on their arduous task. The report with its statistical appendices constitutes an almost complete survey of the progress achieved during the past 22 years. It brings together, and exhibits the interrelation of, a mass of statistical material, drawn from a wide variety of sources, and illustrating the many-sided evolution of the country. Whatever view may be taken of the conclusions reached in regard to individual issues arising out of the terms of reference—some of which inevitably involve controversial points of economic theory—the report as a whole must be recognised as a very valuable contribution to the recent economic and financial history of India.

General course of prices.

3. The general course of prices is indicated in the following table, taken from page 29 of the report, which exhibits the variations in average wholesale * rupee prices, during the years 1890 to 1912, of different groups of articles, for the 24 more or less homogeneous economic circles, into which, for the reasons noted in Chapter II of the report, Mr. Datta has divided India exclusive of Burma and the Native States. The figure 100 represents in this table the average wholesale price of each group of commodities for the years 1890 to 1894, which have been selected by Mr. Datta as the standard or basic period for the purpose of estimating the fluctuations in the price level; and the prices of each group in the different years are accordingly shown as percentages of this figure.

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* Wholesale prices have been used for the reasons noted by Mr. Datta on page 29 of the report, *viz.*, that they are more sensitive than retail prices in reflecting industrial and trade conditions, and that retail prices in India correspond in their movements generally with wholesale prices, because the cost of retailing is extremely small.

Years.	Food grains—Cereals.	Food grains—Pulses.	Sugars.	Tea and coffee.	Other articles of food.	Oilseeds, oils and oilcake.	Textiles—Jute.	Textiles—Cotton.	Other textiles.	Hides and skins.	Metals.	Other raw and manufactured articles.	Building materials.	General average.
1890 . .	93	97	99	95	99	97	92	102	101	95	98	100	99	97
1891 . .	99	100	100	94	97	98	94	96	97	95	98	98	99	98
1892 . .	110	107	98	103	101	101	105	95	95	96	100	99	99	103
1893 . .	103	101	102	98	103	104	103	105	104	105	100	102	101	102
1894 . .	95	95	101	110	100	100	106	102	103	109	104	101	102	100
1895 . .	94	102	98	100	94	104	103	102	99	120	105	106	104	101
1896 . .	109	114	98	94	99	109	104	102	92	111	104	108	107	106
1897 . .	148	159	101	83	110	114	92	98	88	109	105	103	109	121
1898 . .	109	115	100	78	110	101	89	91	84	113	106	101	112	106
1899 . .	100	102	97	71	109	101	97	87	94	124	122	103	113	104
1900 . .	134	139	104	67	120	122	109	108	88	115	137	112	116	122
1901 . .	116	130	101	66	117	118	101	104	83	118	121	107	118	116
1902 . .	109	116	91	65	108	114	95	102	84	120	116	104	120	111
1903 . .	101	106	92	66	106	100	103	106	93	136	116	106	122	107
1904 . .	97	99	96	65	106	95	109	121	91	141	113	110	125	106
1905 . .	112	115	105	65	115	112	127	113	98	148	115	112	128	116
1906 . .	132	140	99	65	124	132	157	121	98	164	126	118	131	129
1907 . .	139	147	99	72	125	141	154	123	102	161	137	123	134	133
1908 . .	168	179	106	68	124	145	119	121	86	150	121	122	136	143
1909 . .	146	148	109	71	124	131	111	119	93	152	116	122	138	133
1910 . .	127	124	112	79	130	143	119	141	96	164	118	127	142	132
1911 . .	126	122	109	83	133	149	144	145	95	159	119	126	146	134
1912 . .	143	141	111	85	136	156	160	137	98	172	128	132	149	141

4. It will be seen from the above table that—

(1) Apart from a slight rise in 1892-1893, the price level was fairly steady from 1890 to 1895. With a severe famine prevailing over a large part of India, the general index number rose to 106 in 1896, and 121 in 1897. The rise was practically confined to food grains, other articles of food and oilseeds. Agricultural conditions were generally favourable in the two following years, and food grains fell to about the level of the basic period. There was a considerable rise however, under hides and skins, metals, and building materials, and the general level stood at 106 in 1898 and at 104 in 1899.

(2) With the advent of famine conditions in Northern India, the Central Provinces and Bombay, the general price level rose again in 1900 to 122. The proportionate increase was greatest under food grains and oilseeds, but was shared by almost all classes of commodities. In the following three years, the prices of food grains and oilseeds fell rapidly, the index numbers for 1904 being lower than the average of the basic period. Hides and skins and building materials continued to rise. The price of textiles (cotton) rose to 121 in 1904; and that of textiles (jute), after a fall in 1901-1903, to 109. The general level stood in 1904 at about the average of the years 1898-1899.

(3) From 1905 to 1908 prices rose rapidly and continuously. The general level rose to 116 in 1905, to 129 in 1906, and 133 in 1907. The highest point (143) was reached in 1908 when famine conditions prevailed in Northern India. The general average fell in the next 3 years, but that for 1912 was only slightly below the figure of 1908. The rise during this period extended to almost every kind of commodities.

Particular commodities.

5. The table on page 30 of the report, exhibiting the quinquennial average index numbers of wholesale (rupee) prices, indicates that the increase in prices in the years 1908-1912 has been most marked in the case of hides and skins, oilseeds, food grains, and building materials, which have risen 40 per cent. or more above the level of the basic period 1890 to 1894. The quinquennium 1908-1912 includes, however, the famine year 1908 and does not therefore accurately represent the proportionate rise in the various classes of commodities. A better index is the average of the triennium 1910-1912. During these years the proportionate increase as compared with the basic period has been greatest in the case of hides and skins (65 per cent.); raw cotton (58); raw jute (58); oilseeds (49); building materials (45). Food grains have risen 30 per cent., cotton manufactures 31 per cent., and metals 22 per cent.

Local variations.

6. The report analyses in some detail the local variations in the price level. Comparing the general average of prices in the years 1910-1912 with those for the basic period, the smallest increases (under 33 per cent.) are shown by the ports (except Karachi) and in Assam where prices in the earlier years were somewhat above the general level. The rise has been greatest (38 per cent. and over) in Karachi, parts of Madras, Berar, Sind, the Bombay Deccan and the Punjab. In the quinquennium 1908-1912 the increase has been most marked, (40 per cent. and over) in Karachi, Bundelkhand, Berar, Sind, South Madras, the north and west of the United Provinces, the North-West Frontier Province, the Punjab and the Bombay Deccan; and has been lowest (below 35 per cent.) in the ports of Calcutta, Bombay and Madras and in Assam. The variations reflect, it is clear, the agricultural conditions obtaining in the different circles during the years selected for comparison with the basic period. Taken as a whole, the provincial statistics illustrate strikingly the extent to which the development of communications has tended to equalise prices throughout the country

Causes of the rise.

7. Mr. Datta traces the rise in prices above analysed in part to causes peculiar to India, and in part to causes which have influenced the price level throughout the world. Under the former head the causes suggested are a comparative shortage throughout the period under enquiry in the production of food stuffs, the increased demand for India's food products and raw materials, both in India itself and in world markets, the development of communications, internal and external, the decrease in the cost of transport, and the growth of banking and monetary facilities. Under the head of world's influences he distinguishes the increased supply of gold, the development of credit, the destruction of wealth in recent wars, and the expenditure on armaments. In Mr. Datta's view, it is in the combined action of these numerous factors that the explanation of the great rise in Indian price levels is to be found.

8. As will be shown later, the relative importance of causes which may be classed as peculiar to India, and of causes which fall rather under the head of world influences, has varied greatly in the course of the years under review; and the latter have been on the whole the dominant factor in the upward movement of Indian prices. This movement has, nevertheless, been conditioned throughout by developments of an internal order, and amongst these Mr. Datta justly selects for special mention the great expansion of communications. As shown in the tables

on pages 78, 79 and 82 of the report, between 1890 and 1912 the mileage of Indian railways rose from 15,865 to 31,981, the passenger and goods traffic more than trebled, and freight charges fell on the average by 28 per cent. During the same period the length of metalled roads increased from 36,400 to 51,900. This development in the means of communication, apart from its levelling effect already referred to, has brought all parts of the country into much closer touch with foreign markets and has thus immensely facilitated and enhanced the influence in the direction of a rise which, as will be brought out further on, these markets have exercised on Indian prices.

9. Another factor of smaller, though still considerable, efficacy has been the improvement in banking and monetary facilities. Relatively to the immense developments in western countries, the Indian banking system is still in its infancy. Remarkable progress has nevertheless been made of late. As indicated in paragraphs 214 to 218 of the report, the paid up capital and reserves of the Presidency and major joint stock banks (excluding the exchange banks) increased by 55·7 per cent. during the decade ending 1911. Private deposits available for commercial enterprise in the Presidency and joint stock banks, including exchange banks, rose from an average of about 26 crores in the five years 1890 to 1894, to an average of 61 in the quinquennium 1905 to 1909 and of 83 in the years 1910 and 1911. The increase has been exceptionally rapid since 1900. The deposits, which in that year amounted to 31 crores, rose to 51 crores in 1905, 73 in 1909, 82 in 1910, and 85 in 1911. Again, between 1890 and 1912 the value of the cheques cleared at the clearing houses in Calcutta, Bombay, and Madras increased from 138 to 517 crores. There can be no doubt that, as observed by Mr. Datta (page 83, paragraph 214, of the report), the extended use of credit has had an important effect on prices.

10. A still greater influence has been attributed in some quarters to the large additions which, as shown in the table on page 90 of the report, were made to the monetary circulation, during the years 1903-04 to 1907-08, by the coinage of new rupees. It has been suggested that these additions were excessive, and in the long run largely contributed to, if they did not wholly cause the exceptionally great rise in Indian prices. The facts set forth on pages 88 to 94 of the report indicate what little foundation there is for this suggestion. As shown on page 88 (paragraph 228) whenever the Government of India have coined more rupees, they have been compelled to do so by the depletion of their reserves, due to the demands of trade. In 1902-03 the percentage of the rupees held in the currency reserve to the total circulation of currency notes was 30·6; in 1903-04, 30; in 1904-05, 28·7; in 1905-06, 30·4: in 1906-07, 29·2: while in 1911-12 when coinage was again resumed, after having been in abeyance for some years, it fell to 25·1. Moreover, as Mr. Datta has clearly brought out on pages 91-92 (paragraphs 233 and 234), whilst the volume of metallic currency has expanded greatly since the year 1890, there is nothing to indicate that the increase has been larger than what has been required by the growth of business transactions. As far as can be judged from the suggestive statistics (page 93, paragraph 234) in which Mr. Datta has collated the leading data relating to external and internal trade, railway traffic, post office and treasury transactions, the capital of joint stock companies, the consumption of rice, wheat and coal, and the production of jute and cotton, the expansion of business as a whole has probably been more rapid than that of the metallic currency.

The Indian currency system of to-day is, in fact, as Mr. Datta brings out (page 88, paragraph 228) really quite as automatic as it was previous to the closing of the mints to the free coinage of silver. Additions to the rupee coinage are determined by the needs of the trade of the country, and the action of the Government is confined to fixing the amount of fresh coinage which it is desirable to undertake at any particular moment. If its action should prove inadequate, trade demands will force on further coinage ; if it should be excessive, the surplus rupees simply lie in the currency reserves till called forth by further trade demands. A rise in prices which is not the result of a diminished supply of commodities must necessarily be attended by an increase in the volume of currency. Both facts are different sides of one and the same phenomenon. But the suggestion above referred to reverses the true order of causation. It has been the increased demand for Indian commodities and the rise in prices resulting, as will be shown later, therefrom, which has necessitated the increased coinage of rupees.

11. Amongst the other possible causes of a rise in prices which are grouped as peculiar to India, Mr. Datta devotes special attention to the interesting, but difficult, problem of the relation between the supply of food stuffs and the demand for food as measured by the growth of population. The conclusions he arrived at may best be presented in his own words : "Considering the growth of the population and the increase in the external demand" (he observes on page 61, paragraph 156) "the supply has been short during the greater part of the period embraced in the enquiry. The demand for both internal consumption and exports having increased at a quicker rate than the production of food grains it is only natural that the general level of prices of food grains over a series of years would rise, although in a particularly favourable year it might have fallen to some extent. The food supply in India, compared with the demand, both internal and external reached its lowest level in the quinquennium 1905-09, and this shortage of supply has doubtless contributed, in no small measure, to the unusual rise in prices during that quinquennium." And in the final chapter of the report, summing up the causes of the increase in the price level, he states that "in recent years the production of food grains has not been keeping pace with population. This would explain the almost continuous rise in the price of food grains" (page 188, paragraph 453). This result is attributed in part to unfavourable seasons, and in part to the failure of the area under cultivation to expand *pari passu* with the population ; and on pages 64 to 66 (paragraphs 169 to 175), it is suggested that the substitution of non-food for food crops has to some extent been responsible for the latter circumstance.

12. It is evident that Mr. Datta intended these generalisations to be treated as qualified by his remarks elsewhere on the effect of the extended cultivation of non-food crops, and of the increased external demand or India's food products. Thus on page 66 of the report, he observes that the total area which commercial crops have occupied at the expense of food grains is very small compared with the total area under cultivation of the latter, and consequently the effect of this substitution could not have been very great : and on page 96 (paragraph 240) in discussing the imposition of an export duty on food grains, he points out that the proportion of exports to the total production is ordinarily very low, not rising even in exceptionally favourable years much above 4 per cent. An even more important qualification is supplied by his confident and evidently well-founded conclusions—to which fuller reference will be made below—as to the generally beneficial effect of the rise in prices. The whole question, however, is one of much obscurity, and it may be convenient to bring together the leading data bearing on the problem.

13. Mr. Datta's main statistical results, as far as this question is concerned, are presented in the following table (page 58, paragraph 145), which compares the growth in population with that in the area under cultivation, and in the production of food grains. The figures have reference to the official year ending on the 31st March, and the average of the first quinquennium is denoted by the figure 100, the figures for the years which follow being expressed as percentages of this.

	Average of the quinquennium 1890-91 to 1894-95.	Average of the quinquennium 1895-96 to 1899-00.	Average of the quinquennium 1900-01 to 1904-05.	Average of the quinquennium 1905-06 to 1909-10.	1910-11	1911-12
Population	100	101·6	103·7	105·7	107·8	108·4
Total area under cultivation	100	98	103	105	108	106
Area under food grains	100	96	101	102	106	103
Production of food grains	100	98	105	99	113	109

As Mr. Datta, however, is careful to point out—page 54 (paragraph 134) and page 226 (Appendix D, paragraph 11)—the data from which this table has been constructed are, with the exception of the population statistics, largely conjectural and uncertain. For the immense areas of Bengal, Bihar and Orissa, for about one-third of the Madras Presidency, for the hill tracts in the United Provinces, and in Assam—and, it may be added, for the Native States, which, though excluded by Mr. Datta, cannot legitimately be ruled out of account—neither the area under cultivation nor the area under food grains is known with any accuracy; and for such areas Mr. Datta had no alternative but to base his statistics of cultivation on more or less arbitrary assumptions. Further, attempts to estimate the total outturn of agricultural produce, even when the area is definitely ascertainable, are beset with insuperable difficulties. The normal yields per acre, the foundation of all such estimates, are notoriously untrustworthy. These yields have been revised from time to time—there has been some revision even since Mr. Datta's report was written—but the figures are still far from satisfactory, and the Government of India have had for some time under consideration the substitution of a more reliable agency for the conduct of the investigations from which the yields are ultimately derived. The remaining factor in the calculation, the percentage of the yearly outturn to the normal, is a still more uncertain quantity, resting as it does on district returns, which are little more than loose conjectures, vitiated in particular by a distinct bias in the direction of under-estimation. Finally, the whole mass of material, comprising elements of every degree of validity, has to be reduced by a complicated process of averaging and weighting, and it is evident from a study of the detailed results that here, too, considerable further difficulty has been experienced and divergent methods employed.

In such conditions, the sounder course from the statistical standpoint, is to dispense with the superficial and misleading appearance of completeness, and to consider what inferences are suggested by a less ambitious enquiry, which confines itself to the more trustworthy of the available statistics.

14. The following table shows the total acreage under cultivation and the population during the period 1890 to 1912, in the tracts for which relatively accurate returns are procurable, *viz.*, parts of Assam, the United Provinces exclusive of the hill districts, the Central Provinces and Berar, the Punjab, the North-West Frontier Province and the Bombay Presidency.*

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* (1) No figures have been included for the Madras Presidency. In one-third of that Presidency, as explained in paragraph 13, no accurate data are available. For the remaining two-thirds, or thereabouts, the figures are sufficiently correct for each year taken by itself, but cannot be used for the purpose of a comparison extending over a series of years, owing to the gradual extension of the reliable statistics, which is due mainly to progress of statistical work in respect of proprietary villages.

(2) Certain small areas in the Bombay Presidency, for which statistics are not available in all the quinquennia, have been omitted. A corresponding deduction has been made in the population figures.

(3) The figures of population in the different quinquennia have been calculated by the method of interpolation on the assumption of equal annual increments.

—	Average of the quinquennium 1890-91 to 1894-95.	Average of the quinquennium 1895-96 to 1899-00.	Average of the quinquennium 1900-01 to 1904-05.	Average of the quinquennium 1905-06 to 1909-10.	Average of 1910-11 to 1911-12.
Area under cultivation in acres	123,480,000	115,352,000	126,217,000	130,253,000	132,018,000
Index No.	100	93·4	102·2	105·5	106·9
Population	99,649,000	100,029,000	101,008,000	102,383,000	103,018,000
Index No.	100	100·4	101·4	102·7	103·4

Except during the quinquennium 1895-96 to 1899-1900, the figures for which reflect the results of repeated and severe famines, the area under cultivation has expanded more rapidly than the population.

15. The area under food grains during the same period was as follows :—

—	Average of 1890-91 to 1894-95.	Average of 1895-96 to 1899-00.	Average of 1900-01 to 1904-05.	Avearge of 1905-06 to 1909-10.	Average of 1910-11 to 1911-12.
Area in acres	101,121,000	93,978,000	101,213,000	103,055,000	103,332,000
Index No.	100	92·9	100·1	101·9	102·2
Population	99,649,000	100,029,000	101,008,000	102,383,000	103,018,000
Index No.	100	100·4	101·4	102·7	103·4

Excluding again the famine quinquennium 1895-96 to 1899-1900, this table exhibits an almost precise parallelism between growth of population and extension of food cultivation ; and the only interpretation which the figures can bear is that the correspondence between the two has been substantially maintained.

16. These figures, can however, be supplemented to some extent. As already explained, it is idle to attempt any exact estimate of the yield of any given acreage—and without such exactitude, no further progress can be made on purely statistical lines, when a fractional discrepancy only remains to be dealt with. But it is known that the cultivated area at the close of the period under review included irrigated land to a considerably greater extent than at the outset, and the consequent improvement of outturn and increased certainty of securing it, must have more than counterbalanced any slight defect in area as compared with population, if indeed any such defect has existed. The statistics bearing on this subject, which have been extracted from the records of the Irrigation Department, are tabulated below.

Area in acres irrigated from State owned sources.

AVERAGE OF TRIENNIUM							
1890-91 to 1892-93	1893-94 to 1895-96.	1896-97 to 1898-99.	1899-00 to 1901-02.	1902-03 to 1904-05.	1905-06 to 1907-08.	1908-09 to 1910-11.	Average of 1911-12 to 1912-13.
7,580,884	7,601,620	10,675,722	11,543,631	12,156,391	13,755,121	13,780,891	14,441,922

Area and outturn, moreover, are not the only factors involved. An additional factor of crucial importance is the great development of communications already referred to, and its incalculable effect in enhancing the " efficiency " of any given aggregate of food production. This principle, which is a truism of famine policy, is also applicable to the conditions of supply in normal years, and its bearing on the question of food supply must not be overlooked.

17. As applied to a country like India, which has the world's supplies to draw upon, the conception of an absolute shortage, which appears to underlie Mr. Datta's whole treatment of the subject, can have no valid significance. The real problem as regards a country so situated is obviously to determine whether the purchasing power of the people generally has increased. If that has been demonstrated in the case of India, as Mr. Datta affirms, it may be confidently inferred that the Indian community has continued to provide itself, to an at least equal extent, with the necessaries of life, which constitute its first requirement. In this connection a very relevant consideration is that brought out by Mr. Datta on page 189 (paragraph 455), *viz.*, that "India has now to part with much less of her produce to meet her foreign obligations for the simple reason that her produce has risen in value in European markets." In virtue of this rise India has been in an exceptionally favourable position for procuring from outside sources such additional supplies of food as she may have needed; though the statistics of imports of food grains on page 97 of the report do not indicate that in fact the internal supply has required to be supplemented in any markedly increased degree. The statistical study of food production, in short, while it has a certain value as suggesting a test by which to qualify conclusions independently obtained, cannot stand alone. In so far, however, as they admit of separate formulation, the following appear to the Government of India to be the principal inferences which can fairly be drawn from this branch of Mr. Datta's enquiries.

18. In the first place, strictly speaking, there has been no substitution of non-food for food crops in the country as a whole. The food cultivation area has grown, though the area under commercial crops has increased in a higher proportion; and the more rapid expansion of the cultivation of jute and cotton in certain areas cannot, in view of the very small proportion of the total area which these crops occupy, have exercised any appreciable influence on the general level of food prices.

Secondly, so far as trustworthy statistical evidence is available, it would appear that the area under food crops has increased in almost exact correspondence with the growth of population— a fact which must be held to imply the production on the average of a relatively larger and more efficient food supply, in view of the large extension of irrigation and transport facilities. The statistical data relating to acreage under food crops do not, however, cover the whole ground, as information is admittedly wanting for large areas, ; and, partly for this reason, and partly owing to the defective character of the information available regarding the other factors involved, no really reliable estimate of the outturn during the period under review can be framed.

Thirdly, as regards export of food grains, Mr. Datta has clearly brought out (pages 96—97, paragraph 240) the relative insignificance of the proportion between food exports and food production.

Finally, analysis of the general statistics in regard to the increase of prices elicits the very significant point that there was no sustained upward movement of food prices till after 1904. Even in 1899, very shortly after a large temporary increase definitely attributable to failure of the rains, food prices had reverted to practically the level of the basic period 1890-1894; and in 1904 they fell below it. The causes of the rapid and sustained rise subsequent to this year, which is even more conspicuous in the case of a number of other commodities, must be sought for in a different and independent group of circumstances.

19. The point last mentioned leads up to a distinction, the fundamental importance of which, though not entirely unrecognised in the report, has been

overshadowed in the attempt to deal with the question of food prices as a self-contained problem. The essential fact which emerges from Mr. Datta's enquiry, is the division of the history of Indian prices since 1890 into two well marked periods dominated on the whole by widely different conditions. From 1890 to 1904 internal conditions were the principal factors in the determination of the price level. Prices rose and fell in the main in accordance with changes in the agricultural conditions from year to year. The only articles which show a continued rise during this period are hides and skins, the prices of which are governed by those prevailing in the world markets; building materials; and after 1897, metals. With these exceptions, the only indication of a permanent upward tendency in prices is the increase in the prices of exports from 1900-1901, which affected to some extent the general level in that and the four following years. Whilst the volume of export trade expanded slowly between 1890-1891 and 1899-1900, the average prices of Indian exports, as shown on pages 137-138 (paragraph 334) of the report, were lower in the quinquennium 1895-1896 to 1899-1900 than in the preceding five years. There are signs in the general foreign price level, the statistics regarding which are exhibited in the table on page 48 of an upward movement after 1896, but the advance shown, apart from the exceptional year 1900, was not very marked in most countries, nor does it appear to have exercised any considerable influence on Indian prices till some years after the opening of the new century.

20. With the year 1905 Indian prices entered upon a new phase. Prices rose rapidly to unprecedented heights, and so far there is nothing to suggest the probability of a reversion to the levels of former years. The explanation of this remarkable phenomenon cannot be found in changes of an internal nature; and examination of the statistics of prices in other countries indicates clearly that the increase in Indian prices has been broadly synchronous with a general upward movement in price levels throughout the world, and that its origin must accordingly be sought in causes more or less common to the whole civilised world. In the United Kingdom prices, taking the average of the *Economist's* and Sauerbeck's index numbers, rose between 1903 and 1912, 25 points; in Germany between 1902 and 1911, 35 points; in Italy between 1902 and 1911, 21 points; in Belgium between 1897 and 1911, 27 points; and in the United States between 1899 and 1912, 33 points. As to the precise causes responsible for this phenomenon economic authorities are not as yet completely agreed, but the worldwide character of the rise, and the broad parallelism between this and the upward movement of Indian prices since 1904, are indisputable.

21. The influence on the Indian price level of this notable change in world prices can be traced clearly in the statistics of foreign trade. As indicated above, the average price of exports rose to some extent between 1900-1901 and 1904-05. But from 1905-1906 onwards the increase has been altogether unprecedented. As shown in the table on page 138 of the report, during the quinquennium 1905-1906 to 1909-1910, the value of Indian exports* exceeded by rather more than 116·6 crores, or an annual average of 23⅓ crores, the value which would have been represented by the same quantities dealt with at the average rates prevailing during the basic period. In 1910-1911 and 1911-1912 the difference in value was even greater, being 42·12 and 48·58 crores respectively. Of these increases, cotton contributed † about 22 per cent., jute about 28 per cent., hides and skins about 9 per cent., seeds about 13 per cent., and grains and pulses about 9 per cent. It

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* As explained by Mr. Datta on page 139 of the report, the table on page 138 represents the values declared and calculated, of about 99 per cent. of the exports, because it was not possible to ascertain the quantities of exports in the case of the remainder.

† For the reason given in the preceding note, the percentages cannot be calculated with absolute accuracy. The margin of error, however, is insignificant.

is to this immensely enhanced demand for Indian commodities of export that the relatively larger rise in the Indian price level as compared with that of other countries is probably to be attributed. While the rise since 1904 in the prices of imports, which reflect more accurately than exports the general course of world prices, has been considerable and has assisted materially to raise the Indian level, it has been proportionately much smaller than in the case of exports.

22. The social effects of the rise in prices during recent years have been the theme of much discussion in every country. As regards India Mr. Datta's conclusion, as already stated, is that on the whole they have been beneficial. His views on this aspect of the inquiry are summarised in the following extracts from pages 184-186 and 189 of the report:—

> "There has undoubtedly been a real progress, an increase of wealth and a general diffusion of it, in consequence of an increase in the profits of agriculture, and a remarkable increase in wages greater than the cost of living in almost all parts of India during the period of rising prices. There has indeed been a very great increase in the annual income of India. Dr. Marshall defines a country's income as 'the net aggregate of commodities and capital, material and immaterial, including services, produced annually by the labour of the country acting upon its natural resources.' It is beyond all doubt that in recent years there has taken place with the development of the resources of the country and the growth of enterprise on the part of the community as a whole, a very considerable increase in this annual income." (Page 184, paragraph 439.)
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> "The standard of living amongst all classes of the population, especially among landholders, traders and ryots, has increased very considerably in recent years, and extravagance on occasions of marriage and other social ceremonies has seriously increased. The average villager lives in a better house and eats better food than did his father; brass and other metal vessels have taken the place of coarse earthenware, and the clothing of his family in quality and quantity has improved. We may also say that the increase in passenger miles travelled predicates the existence of spare money to pay for railway fares." (Page 185, paragraph 443.)
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> "The wage-earners of all classes and in all circles have secured an increase in wages commensurate with the rise in the cost of living. The only exceptions are domestic servants in cities and other urban areas in a few circles, and wage-earners employed in some industries." (Page 186, paragraph 445.)
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> "Landlords have, except in some special areas, received increased cash rents, cultivators increased profits from agriculture, and wage-earners generally have gained in consequence of their wages having increased more than prices. It is only persons on fixed salaries or dependent on income from securities and shares and professional men who live upon customary fees, who have suffered from the rise in prices, as their income, not being at all elastic, has not risen sufficiently to meet the increased cost of living. The effects on the different sections of the community in different areas have been in the same direction and differ only in degree." (Page 189, paragraph 455)

23. That there has been during the last 20 years a remarkable growth in the general prosperity of India is a fact recognised by all impartial observers, and testi-

fied to by all the available statistical evidence. The volume of foreign trade has grown enormously. The quantities of goods carried by rail rose from 23 million tons in 1890 to 48 million in 1903, and 71 million in 1911. The number of passengers by rail increased from 114 million in 1890 to 210 million in 1903, and 390 million in 1911. The value of money orders issued rose from 16·4 crores in 1890-91 to 32·1 in 1903-04, and 48·7 in 1911-12; and the fresh deposits in Saving Banks from 2·68 crores in 1890-91 to 4·66 in 1903-04, and 8·28 in 1911-12. The absorption of gold has been of late on an unparallelled scale, amounting between 1900 and 1911 to no less than 116 millions sterling, as against 27 millions sterling in the preceding 12 years. Great strides have been made in the manufacturing and mining industries. The number of looms and spindles rose, between 1903-04 and 1911-12, in cotton mills from 41,977 and 4,900,106 respectively, to 81,899, and 6,040,760; in jute mills from 18,400 and 376,718 to 32,927 and 677,519; and in woollen mills from 633 and 23,806 to 772 and 29,369; whilst the production of coal has about doubled since 1901. But the most striking evidence perhaps of the improving condition of the people is to be found in the statistics of the import of articles of luxury and convenience such as kerosine oil, apparel, boots and shoes, matches and soap, which increased by 26 per cent. between the basic period 1890-94 and 1903-04; and by 74 per cent. between the latter year and 1911-12. On all sides there are indications of a higher standard of living.

24. That the rise in prices has contributed to this result is indicated both by the comparatively more rapid expansion under the heads above mentioned since 1904, and by analysis of the statistics of foreign trade. A country necessarily benefits by any special demand for its exports, and as has been shown, the demand for Indian exports has expanded immensely since 1904-1905. Against the gain in this direction has to be set the increased cost which India has had to pay for her imports; but Mr. Datta estimates (pages 138-139, paragraph 335 and 336 of the report) that, allowing for the increase in the cost of imports, the annual gain to India through the enhanced prices obtained for her exports amounted during 1900-1901 to 1904-05 to 3·1 crores, during 1905-06 to 1909-10 to 14·7 crores, and during 1910-11 and 1911-12 to no less than 34·2 crores. It is impossible in the face of these figures to doubt that India as a whole has benefited by the rise in the price level since 1904. It is a matter of greater difficulty to measure the resulting gain or loss to different sections of the community. Adequate data do not in fact exist for any precise and minute measurement of changes in real income or real earnings. Comparison between the prices of goods produced or wages earned, and the prices of goods most commonly consumed, furnishes, however, a rough index of the effects of the rise in prices on the various classes.

25. The most important section of the community are the cultivators, who comprise, according to the census of 1911 (Volume I, Part II, Table XV) more than half the total population. As a rule cultivators grow their own food, and to ascertain therefore the changes in their real income resulting from the rise in prices, comparison has to be made between their expenditure as measured by their payments for rents or land revenue, wages and commodities purchased, and their income as measured by the prices secured for produce sold. The general conclusion to be drawn from this comparison is unmistakable. On the income side, in the quinquennium 1908-1912, the wholesale price of raw jute was 43 per cent. above the level of the basic period 1890-1894, that of raw cotton 45 per cent., of hides and skins 59 per cent., of oil seeds 45 per cent., of food grains (cereals) 42 per cent., and of food grains (pulses) 43 per cent. On the expenditure side, cotton manufactures, the largest item in the normal expenditure of the cultivator, rose only 25 points, the cost price of salt fell by 3 per cent. apart from the reduction of the general rate of duty from Rs. 2-8-0 to Re. 1-0-0 a maund, metals rose 20 per cent.

and sugar 9 per cent., while kerosine oil shows no great increase. The movements of rents have varied greatly in different areas, and as regards the different classes of tenants. Grain rents, as measured by their cash value, have no doubt risen proportionately to the rise in prices, but cash rents in general have lagged behind prices; whilst the enhancements of land revenue in ryotwari areas, so far as attributable to the rise in prices, have been comparatively small. Wages have risen more rapidly even than prices. But, on the balance, the gain in real income is manifest.

26. The valuable wage tables prepared by Mr. Datta point to a great improvement in the condition of the wage-earning population. The collection of reliable statistics of wages has always been a matter of great difficulty in India; and Mr. Datta's figures do not in all respects agree with those of the wage census carried out in the years 1911-1912. There is no reason to doubt, however, that they represent with sufficient accuracy the broad trend of wages. In many countries wages have only slowly adapted themselves to the rise in prices; and the necessary readjustment has been attended with much social friction. But in India circumstances have favoured the wage-earner. The increasing profits of agriculture, which, as shown in Mr. Gait's report on the census of 1911 (Volume I, paragraph 530) have enhanced the demand for labour on the land, the demand for labour on public works, the expansion of the factory industry already referred to, and in parts the mortality from plague* have combined to promote a great and rapid increase in wages during recent years.

27. Agricultural labourers still constitute the largest section of the labouring population. For many reasons changes in the real income of this class are peculiarly hard to measure. Payment in kind is still common; there are great variations in the continuity of employment; and in parts hereditary or customary obligations affect the rate of remuneration. But the statistics, compiled by Mr. Datta, of cash wages paid to independent labourers indicate roughly the general movement of earnings since the basic period. As compared with this period, cash wages, by 1912, had nearly doubled. When every allowance has been made for the disturbing factors above alluded to and the rise in prices, Mr. Datta's estimate (Volume III, Statistics, page 203) of an increase of 38 per cent. in real income in 1912, as compared with the basic period 1890-1894, seems fully justified.

28. Equally or little less remarkable has been the rise in the real earnings of general labourers and artisans in villages, urban areas and cities. The statistics show advances in money wages ranging from 77 to 98 per cent. since the basic period. The case of factory hands, however, is more complicated. Wages in factories were in the earlier years above the general level; the rate of increase has accordingly been smaller, and has varied much, both as between different

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* It is important not to overestimate the economic effects of plague which, though a grave calamity accounted only for a small proportion of the total deaths in the period under review, and left large tracts of India practically unaffected. Out of 132¼ million deaths reported in British India between 1896 and 1913, rather less than 7 million deaths were attributed to plague.

This opportunity may be taken of correcting some statements on this subject in paragraph 71, page 26, of the report:—

(1) The report states that, between the first official intimation of plague and the census of 1901, ¾ million had died of the disease. The correct figure is about 424,000.

(2) The report states that the mortality in the town of Dinga in 1907 was 119·20 per mille. It should have been added that the population of this town was only 5,412, so that it cannot be taken as a general index in regard to the Province,

(2) The report states that "since the Black Death of the 14th century, there has never been such mortality from plague as in India between 1896 and 1912." The Government of India are not aware that authority exists for this categorical statement.

industries, and as between factories of the same kind in different provinces. In the absence of detailed family budgets, which Mr. Datta found it impossible to prepare, and of information as to periods of unemployment and overtime, no exact comparison of nominal and real wages can be made. Wages, however, have been rising rapidly in all factory industries since 1903, and it seems fairly certain that in the jute, wool, leather and mining industries, in the paper industry as a whole, and in the cotton mills of Calcutta, the United Provinces and the Central Provinces, they have risen faster than the cost of living. In the cotton mills of the Bombay Presidency, however, where wages in the basic period were higher than in other parts, and are still relatively high, and in those of Madras, it is doubtful whether the rise in money wages, considerable though it has been of late, has fully kept pace with the rise in prices.

29. Wages on railways exhibit similar variations. In Sind, Gujarat, and in the Bombay Deccan, where in the basic period they ruled high, wages have possibly lagged behind prices of late. But on the whole the wage-earners on railways seem to have secured increases in pay more than proportionate to the increase in the cost of living. The same is true for the most part of domestic servants.

30. In the case of the upper and middle classes, material is lacking for any but the most general estimate. The considerable expansion in the income tax receipts suggests, what indeed would seem to be obvious, that for the trading community the period has been one of growing prosperity. Cultivating proprietors have undoubtedly benefited, while in the case of landlords it has to be remembered that, if rents have risen less rapidly than prices, on the other hand, as indicated by Mr. Datta on page 145 (paragraph 345) of the report, "the share of the increased profits taken by Government as the supreme landlord is a comparatively small part of the total increase which has accrued from the rise in prices." Persons on fixed incomes have certainly suffered, and it is Mr. Datta's opinion that the professional classes too have been adversely affected, but the circumstances of this section of the community do not appear to have been made the subject of detailed statistical investigation. It may be observed, however, that in the case of the lower paid Government servants, civil and military, various measures in the direction of increased pay have been taken of recent years.

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31. It has been shown that the prolonged rise in Indian prices dates from the year 1905, and that its ultimate origin must be sought in causes which have been operative throughout the civilised world. As the growth of communications within India has tended to equalise prices throughout the country, so the parallel development of communications with foreign countries has tended more and more to bring Indian prices into line with those of the world in general. The prices of Indian exports are governed by those prevailing, in the world's markets, and through the growing influence of foreign trade, Indian prices, apart from temporary fluctuations resulting from the character of the seasons, tend to follow the same course as world prices. The problem of the future course of prices in India is one therefore to which no solution can be found in the analysis of Indian conditions only. It is essentially bound up with the question of the movement of prices throughout the world. Prices have so far shown no sign of reverting to former levels. As regards the future, the factors involved even under normal conditions of evolution, are too numerous, too complex, and too incalculable in their operation to warrant any definite and confident, prediction : and the normal course has now been interrupted by the catastrophe of general war, the total effect of which upon the highly organised western systems of production, trade and finance it is quite impossible to forecast.

Ordered that a copy of the foregoing Resolution be forwarded to all local Governments and Administrations, to the several Departments of the Government of India, to the Financial Adviser, Military Finance, to the Heads of Departments subordinate to this Department, to the Comptroller and Auditor General.

Also to all Chambers of Commerce and to the Secretary and Treasurer, Banks of Bengal, Bombay and Madras.

Ordered also that it be published in the *Gazette of India* for general information.

Report on the Enquiry into the Rise of Prices in India.

CHAPTER I.

Introductory.

The origin of the enquiry.

FOR some time previous to the decision of the Government of India to undertake an enquiry into the rise of prices, there was evidence of a widespread feeling that the continued rise of Indian price levels urgently called for investigation. The matter had not only been the subject of articles in newspapers and journals, and public speeches in various parts of India, but had also been ventilated in three successive sessions of the Imperial Legislative Council. There was, too, the existence of a constant demand from publicists, students of Economics and others for reliable statistics in regard to prices and wages, the lack of which was very keenly felt; facts were required which should be collected in such a manner as to carry their own conviction. The most important feature of the general economic situation in India in recent years has been a steady and persistent rise in the general price level. When the economic history of the country for the last two decades comes to be written, the most noticeable feature will be the rapid and continuous advance in prices, and the consequent increase in the cost of living.

The rise of prices not confined to India.

2. This, however, is a phenomenon which has not been confined to India alone. It has manifested itself in most countries of the world. In every advanced industrial country it is stirring deep discontent among the wage-earners, who find the price of food and other necessaries of life rising faster than their money wages, while the rise in interest and the shrinkage in the value of the older securities, which accompany it, are producing grave disturbances in the financial arrangements of the business classes. Labour disputes have been rife in England, Germany, France and America, the leading note in every case being a protest against the rising cost of living and a demand for higher wages to meet extra expenses. The slow adjustment of wages to prices has undoubtedly been the economic cause of the discontent. On every hand an explanation is being sought for an economic phenomenon which has appeared simultaneously in every country of the commercial world. The rise in prices has been too general to be satisfactorily accounted for by any combination of special causes operating in different countries, while its persistence for some fifteen years requires us to assign a less temporary cause than the failure of this or that harvest. It is, therefore, necessary to seek for some common influence or influences, that will not only explain the general advance of prices in the world markets, but will also account for prices not returning to their old level after these temporary causes had ceased to act. Specific enquiries into the extent of the rise have been carried out in the United States, Canada, England, France, Austria, Spain, Italy, New Zealand, Australia and other countries. An international conference on the cost of living was suggested last year by President Taft to the Congress (U. S. A.).

3. In March 1910, I was appointed to conduct an enquiry into the rise of prices in India assisted by Mr. G. Findlay Shirras, M.A., F.S.S., I.E.S. (then

Professor of Economics in the Dacca College) and Mr. S. D. Gupta, M.A., F.S.S. (of the Finance Department). Messrs. Shirras and Gupta joined their appointments in May 1910.

The terms of reference.

4. The terms of reference on which I was asked to report are as follows :—

(1) What has been the actual rise in prices in India during the past fifteen years ?

Has the rise affected all commodities alike, or is it specially marked in the case of food grains ?

Are there marked differences in respect of enhancement of prices as between different areas ?

(2) To what extent is the rise in prices due to what may be styled "world factors," and how far may it be ascribed to local conditions ?

(3) Does it appear that the rise is a permanent feature or is it only temporary ?

(4) If it be more or less permanent, what are its probable economic effects on the country as a whole, and on the different sections of the community ?

The object of the enquiry.

5. The object of the enquiry has thus been to ascertain the extent to which prices of different commodities and the general price level have risen in the different parts of India, and the causes and effects of such rise. It has, therefore, been necessary to divide India into areas of economic homogeneity as far as possible, to collect and tabulate statistics of prices and wages in these areas and a variety of other statistics which usually have a bearing on prices and, then, to examine the facts and statistics collected, in the light of economic laws.

CHAPTER II.

Preliminary steps of the Enquiry.

DIVISION OF INDIA INTO ECONOMIC CIRCLES.

British India divided into economic homogeneous areas.

6. In order to differentiate between the price levels in the different parts of the country, India has been divided, as already mentioned, into a number of homogeneous circles, for each of which statistics have been separately compiled. India being a land of many countries, it is expedient to collect and correlate statistics for areas which are more or less homogeneous. Without this division it would be impossible to say whether the rise in price levels has been confined to certain areas, or whether it has been general throughout India. In short, it is necessary to establish units of study, so that after a thorough examination of the movements of prices in the several units, we can ultimately generalise for India as a whole.

The basis of the division into such circles.

7. For statistical analysis, all the Provincial divisions, into which India is divided for administrative purposes, are not compact or homogeneous enough to be handled with advantage. Economic statistics of such wide areas as those comprised in Bengal, the United Provinces of Agra and Oudh, Bombay or Madras, would be of little more value than those relating to the whole of India itself. Within the Provinces are wide differences dependent, for the most part, on a combination of different physical conditions and other circumstances. Further sub-division must, therefore, be resorted to before any reliable conclusions can be drawn from the mass of statistics collected. On what principle should such sub-division proceed? At first sight the differences in the meteorological conditions of the different parts of India are those that arrest our attention. In a country where from 50 to 84 per cent. of the population depend for their living on the land, where a short or untimely monsoon portends disaster that may even culminate in a widespread famine and where, on the contrary, seasonable rain conjures up immediate prosperity, one is tempted to assume that a classification by zones of rainfall and humidity is all that is required for an economic division. But there are other factors, also, which play no less an important part in the economic condition of the country. In some areas, irrigation canals have rendered large tracts independent of the local rainfall and have transformed deserts into populous and fertile corn fields. In others, the physical conformation of the surface cannot be ignored. On the whole, economic homogeneity has to be determined by no one single and exclusive factor but by a careful examination of all the factors that affect the economic condition of the country, *viz.*, meteorological conditions, nature of the soil, conformation of the surface, the conditions under which agriculture is carried on, density of population and the habits of the people, immunity from or liability to famine, similarity of production and consumption, etc.

8. Economic homogeneity is indeed a vague term, and homogeneous areas, even homogeneous districts, fulfilling entirely the above definition, are certainly few. Districts of which the predominating features are the same, have been grouped together to form a circle, and British India, excluding Burma, has been divided into 20 circles, besides the four ports of Calcutta, Bombay, Karachi and Madras, which, for reasons mentioned below, have been treated as independent circles. In making this division the present administrative provincial boundaries have been disturbed as little as possible. A proper

economic division of India should, rightly speaking, consist of a much larger number of circles, but the compilation of separate statistics for each of these for so many years would be too enormous a task. I have, therefore, kept the number of circles as low as possible, consistent with the object of the division.

Burma excluded from the scope of enquiry.

9. Under orders of the Government of India, Burma has been excluded from the scope of the enquiry, though price statistics of Rangoon and the other parts of Burma are published separately. The main reason for excluding Burma is that the statistics of prices available in regard to it are too meagre to form the basis of any satisfactory conclusions. It was not found possible to collect reliable and sufficient data for the nineties from most of the districts. Upper Burma was annexed only three years before the period under investigation, and it was in a disturbed state for some years, commerce and trade were unsettled and there are very few merchants or firms now, who have been carrying on business in Upper Burma since the nineties and have preserved accounts. From the meagre statistics that could, in the circumstances, be available, it would not obviously be safe to draw any conclusions regarding the rise of prices in Burma. Exception might be taken to the exclusion of Burma from the scope of the enquiry on the ground that it is "the granary of India" and exports a large quantity of rice to India. It should, however, be borne in mind that Burma is really a separate country and the economic conditions prevailing there are essentially different from those of India proper.

Native States also excluded.

10. Under orders of the Government of India, Native States have also been excluded from the scope of the enquiry.

The ports have been treated as separate circles.

11. As already mentioned, the four chief ports—Calcutta, Bombay, Karachi and Madras—have been treated as four separate circles, because the conditions prevailing at these ports are totally dissimilar to those in the remaining parts of the divisions in which these ports are situated. The price quotations at the ports are extremely important for comparative purposes. They have a relation with upland prices, as well as with the prices in the world markets. Again, the number of articles for which price quotations are available are very much greater than at other centres. The modern economic conditions are also more pronounced in these port circles. Calcutta, for example, has within itself and its neighbourhood over 50 jute mills, over 30 oil mills, 20 ironworks, 15 cotton mills, 15 flour mills, 8 shellac factories, 9 rope works, 7 saw mills, 7 silk mills, 7 tanneries, 4 bone mills, 3 rice mills, 1 paper mill, besides sugar factories, chemical works, and a host of minor enterprises; its export trade in jute and jute manufactures is of the annual value of 31 crores of rupees; its tea exports, of the annual value of over 8 crores; its oil exports, of 6 crores. Calcutta also controls some 200 coal mines and 300 tea gardens. For these reasons, the ports of Calcutta, Bombay, Karachi and Madras have been taken as units of independent study.

There are twenty-four circles in all.

12. British India, excluding Burma, has thus been divided into twenty-four circles (including the four sea ports), the homogeneity of which has been decided on only after careful statistical examination and, in most cases, consultation with local officers.

Details of the economic circles.

13. The administrative divisions and the economic circles into which I have divided India are shown in map No. 1, and their details are given in the statement on page 5. A brief description of the special features of each circle will be found in Appendix A.

Administration or Province.	Economic Circles.	Districts comprised in each Circle.	POPULATION (IN THOUSANDS) AND PER ACRE OF CULTIVATED LAND.		TOTAL ACREAGE SHOWING PRINCIPAL CROPS (IN THOUSANDS OF ACRES).			Percentage of each crop to total in column 7.	Percentage of each crop to total in column 8.
			1901.	1911.	Principal crops.	Annual average acreage 1890-91 to 1894-95.	Annual average acreage 1907-08 to 1911-12.		
1	2	3	4	5	6	7	8	9	10
Assam	Assam	*Brahmaputra Valley.*—Lakhimpur, Sibsagar, Nowgong, Darrang, Kamrup, Goalpara. *Surma Valley.*—Sylhet, Cachar. *Hill Districts.*—Garo Hills, Khasi and Jaintia Hills, Naga Hills, Lushai Hills.	5,842 1·098	6,714 1·186	Rice	3,898	4,299	73·3	76·0
					Oilseeds	277	313	5·2	5·5
					Tea	326	348	6·1	6·1
					Others	820	699	15·4	12·4
					TOTAL	**5,321**	**5,659**	**100**	**100**
Bengal	Bengal, Northern and Eastern.	*North Bengal.*—Jalpaiguri, Rungpur, Dinajpur, Malda, Rajshahi, Bogra, Pabna. *East Bengal.*—Mymensingh, Dacca, Tipperah, Faridpur.	19,750 1·215	21,912 1·365	Rice	9,849	9,532	60·6	59·4
					Other food-grains.	1,776	1,107	10·9	6·9
					Oilseeds	1,446	1,491	8·9	9·3
					Jute	1,837	2,307	11·3	14·3
					Others	1,353	1,614	8·3	10·1
					TOTAL	**16,261**	**16,051**	**100**	**100**
Bengal with Orissa.	Bengal, Southern and Western.	*Southern Bengal.*—Chittagong, Noakhali, Backergunge, Khulna, 24-Parganas. *Central Bengal.*—Murshidabad, Nadia, Jessore. *Western Bengal.*—Birbhum, Burdwan, Bankura, Hughli, Howrah, Midnapur. *Orissa.*—Balasore, Cuttack, Puri, Angul.	25,640 1·488	26,767 1·539	Rice	12,947	13,663	75·2	78·5
					Other food-grains.	1,757	1,182	10·2	6·8
					Oilseeds	779	510	4·5	2·9
					Jute	246	451	1·4	2·6
					Others	1,497	1,600	8·7	9·2
					TOTAL	**17,226**	**17,406**	**100**	**100**
Behar and Orissa.	Chota Nagpur	Singhbhum, Manbhum, Ranchi, Hazaribagh, Palamau.	4,900 ·717	5,605 ·858	Rice	4,337	4,587	63·5	70·2
					Other food-grains.	1,143	1,386	16·7	21·2
					Oilseeds	789	344	11·6	5·3
					Others	563	218	8·2	3·3
					TOTAL	**6,832**	**6,535**	**100**	**100**
Behar with Darjeeling.	Behar	*North Behar.*—Champaran, Saran, Muzaffarpur, Darbhanga, Monghyr (part), Bhagalpur (part), Purnea, Darjeeling. *South Behar.*—Shahabad, Patna, Gya, Monghyr (part), Bhagalpur (part), Southal Parganas.	23,606 1·048	24,019 1·164	Rice	10,749	8,911	47·7	43·2
					Wheat	1,111	1,198	4·9	5·8
					Barley	837	1,196	3·7	5·8
					Maize	1,677	1,440	7·5	7·0
					Other food-grains.	4,686	4,633	20·8	22·4
					Oilseeds	974	1,155	4·3	5·6
					Others	2,493	2,107	11·1	10·2
					TOTAL	**22,527**	**20,640**	**100**	**100**
United Provinces of Agra and Oudh.	Agra Provinces, East.	*Eastern districts.*—Mirzapur, Benares, Jaunpur, Ghazipur, Ballia, Azamgarh. *Sub-montane districts.*—Gorakhpur, Basti.	11,402 1·238	11,334 1·219	Rice	2,723	2,514	29·6	27·0
					Wheat	795	778	8·6	8·4
					Barley	1,295	1,469	14·0	15·8
					Maize	310	433	3·4	4·7
					Gram	716	631	7·8	6·8
					Other food-grains	2,328	2,532	25·3	27·2
					Oilseeds	360	273	3·9	2·9
					Sugarcane	363	333	3·9	3·6
					Others	319	333	3·5	3·6
					TOTAL	**9,209**	**9,296**	**100**	**100**

Administration or Province.	Economic Circles.	Districts comprised in each Circle.	POPULATION (IN THOUSANDS) AND PER ACRE OF CULTIVATED LAND.		TOTAL ACREAGE SHOWING PRINCIPAL CROPS (IN THOUSANDS OF ACRES).			Percentage of each crop to total in column 7.	Percentage of each crop to total in column 8.
			1901.	1911.	Principal crops.	Annual average acreage 1890-91 to 1894-95.	Annual average acreage 1907-08 to 1911-12.		
1	2	3	4	5	6	7	8	9	10
United Provinces of Agra and Oudh.	Bundelkhand.	Jhansi, Jalaun, Hamirpur, Banda.	2,106 ·690	2,208 ·740	Wheat	448	243	14·7	8·2
					Jowar	454	654	14·9	21·9
					Gram	837	819	27·4	27·4
					Other food-grains.	714	766	23·4	25·7
					Oilseeds	286	340	9·4	11·4
					Others	312	160	10·2	5·4
					TOTAL	**3,051**	**2,982**	**100**	**100**
United Provinces of Agra and Oudh.	Agra Provinces, North and West including Oudh.	*The Doab.*—Saharanpur, Muzaffarnagar, Meerut, Bulandshahr, Aligarh, Muttra, Agra, Etah, Mainpuri, Farrukkabad, Etawah, Cawnpore, Fatehpur, Allahabad. *Hill districts.*—Dehra Dun, Garhwal, Almora, Nainital. *Central districts.*—Bijnour, Moradabad, Budaon, Bareilly, Pilibhit, Shajahanpur. *Oudh.*— Kheri, Bahraich, Gonda, Fyzabad, Barabanki, Sitapur, Hardoi, Unao, Lucknow, Rae Bareli, Sultanpur, Partabgarh.	34,184 1·137	33,640 1·118	Rice	4,875	3,447	16·2	11·4
					Wheat	5,343	5,284	17·8	17·6
					Barley	3,138	3,424	10·4	11·4
					Jowar	1,607	1,640	5·3	5·4
					Bajra	1,348	2,370	4·5	·9
					Maize	1,153	1,788	3·8	5·9
					Gram	4,708	3,356	15·7	11·2
					Other food-grains.	3,778	4,436	12·6	14·7
					Sugar cane	889	868	3·0	2·9
					Cotton	1,014	1,138	3·4	3·8
					Others	2,199	2,343	7·3	7·8
					TOTAL	**30,052**	**30,094**	**100**	**100**
Punjab with Delhi.	Punjab, East	*Jetch Doab.*—Shahpur, Gujrat. *Rechna Doab.*—Lyallpur, Jhang, Gujranwala, Sialkot. *Bari Doab.*—Multan, Montgomery, Lahore, Amritsar, Gurdaspur. *Eastern districts.*—Hoshiarpur, Jullundur, Ludhiana, Ferozepore, Hissar, Rohtak, Gurgaon, Delhi, Karnal, Ambala. *Hill districts.*—Kangra, Simla.	17,543 ·940	16,957 ·884	Wheat	5,299	6,139	28·4	32·0
					Barley	996	819	5·3	4·3
					Jowar	2,007	736	10·8	3·8
					Bajra	1,174	1,131	6·3	5·9
					Maize	884	885	4·7	4·6
					Gram	2,658	2,945	14·2	15·4
					Other food-grains.	2,772	1,520	14·8	7·9
					Oilseeds	738	875	4·0	4·6
					Cotton	614	911	3·3	4·8
					Others	1,525	3,211	8·2	16·7
					TOTAL	**18,667**	**19,172**	**100**	**100**
Punjab and North-West Frontier Province.	Punjab, West	*East of Indus.*—Muzaffargarh, Mianwali, Attock, Jhelum, Rawalpindi, Hazara. *Trans-Indus.*—Peshawar, Kohat, Bannu, Dera Ismail Khan, Dera Ghazi Khan.	4,874 ·856	5,215 ·930	Wheat	2,277	2,400	40·0	42·8
					Barley	435	337	7·6	6·0
					Jowar	351	262	6·2	4·7
					Bajra	693	530	12·2	9·4
					Maize	417	437	7·3	7·8
					Gram	279	357	4·9	6·4
					Other food-grains.	516	480	9·1	8·6
					Oilseeds	345	263	6·1	4·7
					Cotton	145	131	2·5	2·3
					Others	235	412	4·1	7·3
					TOTAL	**5,693**	**5,609**	**100**	**100**
Bombay	Sind	Upper Sind Frontier, Sukkur, Larkana, Karachi, Hyderabad, Thar and Parkar.	3,102 ·940	3,362 ·817	Rice	681	1,040	20·7	25·3
					Wheat	498	457	15·1	11·1
					Jowar	492	576	14·9	14·0
					Bajra	769	916	23·3	22·3
					Other food-grains.	249	422	7·5	10·3
					Oilseeds	412	327	12·5	7·9
					Cotton	100	267	3·0	6·5
					Others	100	110	3·0	2·6
					TOTAL	**3,301**	**4,115**	**100**	**100**

Administration or Province.	Economic Circles.	Districts comprised in each Circle.	POPULATION (IN THOUSANDS) AND PER ACRE OF CULTIVATED LAND. 1901.	POPULATION (IN THOUSANDS) AND PER ACRE OF CULTIVATED LAND. 1911.	TOTAL ACREAGE SHOWING PRINCIPAL CROPS (IN THOUSANDS OF ACRES). Principal crops.	TOTAL ACREAGE SHOWING PRINCIPAL CROPS (IN THOUSANDS OF ACRES). Annual average acreage 1890-91 to 1894-95.	TOTAL ACREAGE SHOWING PRINCIPAL CROPS (IN THOUSANDS OF ACRES). Annual average acreage 1907-08 to 1911-12.	Percentage of each crop to total in column 7.	Percentage of each crop to total in column 8.
1	2	3	4	5	6	7	8	9	10
Bombay	Gujarat	Panchmahals, Kaira, Ahmedabad, Broach, Surat.	2,702 ·724	2,803 ·871	Rice	394	260	10·7	8·1
					Wheat	358	218	9·7	6·8
					Jowar	613	548	16·6	17·0
					Bajra	481	423	13·1	13·1
					Other food-grains.	916	764	24·9	23·7
					Oilseeds	149	144	4·0	4·5
					Cotton	666	773	18·1	24·0
					Others	106	88	2·9	2·8
					TOTAL	**3,683**	**3,218**	**100**	**100**
Do.	Konkan	Thana, Kolaba, Ratnagiri, Kanara.	3,039 2·393	3,111 1·932	Rice	782	974	61·6	60·5
					Other food-grains.	388	516	30·5	32·0
					Others	100	120	7·9	7·5
					TOTAL	**1,270**	**1,610**	**100**	**100**
Do.	Deccan	*Khandesh.*—West Khandesh, East Khandesh. *Deccan Plateau.*—Nasik, Ahmednagar, Poona, Satara, Sholapur. *Karnatak.*—Bijapur, Dharwar, Belgaum.	8,787 ·428	9,220 ·458	Wheat	1,561	1,055	7·6	5·2
					Jowar	7,060	6,019	34·4	29·9
					Bajra	4,168	4,525	20·3	22·5
					Other food-grains.	3,621	3,668	17·7	18·3
					Oilseeds	1,497	1,264	7·3	6·3
					Cotton	2,143	3,103	10·4	15·4
					Others	466	477	2·3	2·4
					TOTAL	**20,516**	**20,111**	**100**	**100**
Central Provinces.	Berar	Buldana, Akola, Amraoti, Yeotmal.	2,754 ·409	3,057 ·421	Wheat	901	318	13·4	4·3
					Jowar	2,237	2,560	33·2	35·3
					Other food-grains.	684	898	10·1	12·4
					Oilseeds	596	236	8·8	3·3
					Cotton	2,229	3,132	33·1	43·2
					Others	94	109	1·4	1·5
					TOTAL	**6,741**	**7,253**	**100**	**100**
Central Provinces with Sambalpur.	Central Provinces.	*Nerbudda Valley.*—Hoshangabad, Narsinghpur, Saugor, Damoh, Jubbulpore, Mandla. *Waingunga and Mahanadi basins.*—Seoni, Chanda, Balaghat, Bhandara, Drug, Raipur, Bilaspur, Sambalpur. *South-Western districts.*—Nimar, Betul, Chhindwara, Nagpur, Wardha.	9,877 ·584	11,603 ·586	Rice	4,346	5,320	25·7	26·9
					Wheat	3,916	2,832	23·1	14·3
					Jowar	1,288	1,974	7·6	10·0
					Gram	791	980	4·7	4·9
					Other food-grains	3,291	4,525	19·4	22·8
					Oilseeds	1,975	2,303	11·7	11·6
					Cotton	715	1,252	4·2	6·3
					Others	604	626	3·6	3·2
					TOTAL	**16,926**	**19,812**	**100**	**100**
Madras	Madras, North-East.	Ganjam, Vizagapatam, Godavari, Kistna, Guntur, Nellore.	10,897 2·017	12,087 1·046	Rice	1,731	4,586	32·0	39·7
					Jowar	928	1,363	17·2	11·8
					Bajra	325	723	6·0	6·3
					Ragi	227	791	4·2	6·8
					Other food-grains.	1,047	1,935	19·4	16·7
					Oilseeds	389	641	7·2	5·5
					Cotton	206	323	3·8	2·8
					Others	549	1,197	10·2	10·4
					TOTAL	**5,402**	**11,559**	**100**	**100**

Administration or Province.	Economic Circles.	District comprised in each Circle.	POPULATION (IN THOUSANDS) AND PER CULTIVATED LAND.		TOTAL ACREAGE SHOWING PRINCIPAL CROPS (IN THOUSANDS OF ACRES).			Percentage of each crop to total in column 7.	Percentage of each crop to total in column 8.
			1901.	1911.	Principal crops.	Annual average acreage 1890-91 to 1894-95.	Annual average acreage 1907-08 to 1911-12.		
1	2	3	4	5	6	7	8	9	10
Madras	Madras, North	Bellary, Kurnool, Anantapur, Cuddapah.	3,899 ·555	5,000 ·649	Rice	338	328	4·8	4·3
					Jowar	2,102	2,149	29·9	27·9
					Bajra	526	609	7·5	7·9
					Ragi	298	294	4·2	3·9
					Other food-grains.	2,137	2,605	30·4	33·8
					Oilseeds	506	491	7·2	6·4
					Cotton	734	929	10·4	12·1
					Others	390	301	5·6	3·7
					TOTAL	**7,031**	**7,706**	**100**	**100**
Do.	Madras, South	*Central districts.*—Chittoor, Chinglepat, North Arcot, South Arcot. *Cauveri Valley.*—Salem, Coimbatore, Trichinopoly, Tanjore. *Southern districts.*—Madura, Ramnad, Tinnevelly.	18,856 1·553	19,464 1·214	Rice	3,122	4,159	25·7	25·9
					Jowar	1,498	1,725	12·3	10·8
					Bajra	1,906	2,311	15·7	14·4
					Ragi	1,103	1,427	9·0	8·9
					Other food-grains.	2,417	3,028	19·9	18·9
					Oilseeds	813	1,453	6·7	9·1
					Cotton	584	989	4·8	6·2
					Others	700	946	5·9	5·8
					TOTAL	**12,143**	**16,038**	**100**	**100**
Madras with Coorg.	Madras, West	Nilgiris, Malabar, Coorg, South Canara.	4,037 2·167	4,334 1·765	Rice	1,205	1,480	64·7	60·3
					Other food-grains.	103	138	5·5	5·6
					Coffee	114	76	6·1	3·1
					Others	441	762	23·7	31·0
					TOTAL	**1,863**	**2,456**	**100**	**100**

Sir Robert Giffen's criticisms on Indian price statistics.

14. By dividing India into a number of independent economic circles, a serious attempt has been made to meet the criticisms of the late Sir Robert Giffen, who in answer to Sir David Barbour's queries before the Gold and Silver Commission said as follows :—

"Nobody would like, more than I would, to see a very good study of Indian prices. Each place I should like to see taken by itself, and all the articles belonging to that place, and a good index number framed for about 50 places, and if you could include wages as well, so much the better. Then I think you might have something which would enable you to arrive at very interesting conclusions. (You are asking more for India than you have given us for England, have you not ?) I am, certainly; but there is one reason why you would not require to have so many places in England, that it is a much smaller place than India, and the facilities for communication are very great....................
If I might make a remark, it is not in any offensive way that I am going to speak it, there are a great many prices for India, but they are published without any note or comment of any kind, and without explanations of apparent discrepancies from year to year, or between place and place. That seemed to me very important and at any rate the prices should be much more useful to outsiders like myself if they were carefully annotated and investigated." (Minutes of Evidence—Gold and Silver Commission, Volume I, 1888.)

PERIOD EMBRACED IN THE ENQUIRY.

The period covered by the enquiry extends from 1890 to 1912.

15. The terms of reference required the enquiry to be limited to the fifteen years, 1895—1909. But for reasons explained in Appendix C, dealing with the construction of index numbers, and as this period commenced with a series of, more or less, severe famines and ended with a period of highly inflated prices, I have considered it advisable to extend the period of the enquiry backwards to 1890, especially because the five years, 1890—1894, have been taken as the base for purposes of comparing the statistics of all later years, and also because it is desirable to go back a few years prior to the period of violent fluctuations in prices, in order that a sufficiently detached point of view might be obtained. The enquiry has also been brought up to the end of 1912. Records from 1890 were found, on the whole, to be fairly accessible, though, in very many cases, much wheat had to be winnowed from a deal of chaff and stubble: but it has not been found possible to go back to earlier years.

TOURS.

The object of touring in the economic circles.

16. Messrs. Shirras and Gupta and myself made extensive tours in all parts of India with a view to collect and correlate reliable statistics of prices and wages, and to examine the question of the rise of prices locally. The places visited in each circle were typical and are shown in map No. 1 published with the report. We visited 92 places in all. I myself visited most of the central and important places, and was sometimes accompanied by one or both of my assistants. The latter also visited some places by themselves. The main object of these visits was, as mentioned above, to collect statistics on the spot, and also to examine the present method of collecting statistics of prices and wages, furnished to the Director-General of Commercial Intelligence, and the general economic condition of the district. Before proceeding on tour, I communicated to District Officers and non-official bodies, details of the statistics required, questions intended to be discussed and facts proposed to be examined. We interviewed both officials and non-officials, and discussed with them various questions connected with the subject of the enquiry. We examined the leading citizens of the district, bankers, merchants, landlords, tenants, and labourers. The tours were thus invaluable as a means of understanding and studying local conditions. I should add that wherever we went we received every possible help from both officials and non-officials and my cordial thanks are due to them.

CHAPTER III.

Collection of Materials.

The scope of the statistics collected.

17. I was much impressed at the outset of the enquiry by the absence of statistics of prices and wages which would enable one to judge, even with approximate accuracy, the extent and effects of the change in price levels in the country. It was, therefore, necessary to collect various classes of statistics, including those of prices and wages, from independent sources, and the collection, sifting and correlation of these have involved an immense amount of labour and trouble. Special effort was also made to collect statistics up to the latest date possible. The statistics now published will, I hope, be found to be a collection of statistics of Indian prices and wages, more comprehensive and reliable than any, previously collected. These include prices from 1890 to 1912 of as many articles as were available in each part of India; wages, for the same period, of skilled and unskilled labour in large cities and industrial centres and other urban and rural areas; acreage under cultivation and outturn of each crop for each year up to 1911; statistics of rainfall divided into months and seasons; statistics of population; statistics of external and internal trade; statistics of coinage, currency in circulation, absorption of gold and silver, balance of trade: statistics of the world's production of gold; statistics of prices in other countries of some of the most important commodities exported from and imported into India; statistics of railway transportation charges in India, and of freights to and from foreign countries; statistics of the world's production of wheat, rice, cotton, sugar, etc.: statistics of the growth of railway and other communications in India; and banking and other miscellaneous statistics.

STATISTICS OF PRICES.

The selection of commodities.

18. The general plan followed in the enquiry was to select a comprehensive list of representative staple commodities and trace the course of prices of each, from year to year, from 1890 to the latest possible date, in most cases the statistics having been brought up to the end of the calendar year 1912.

19. The first step in the enquiry was, therefore, to determine the commodities for which price statistics should be quoted, the object being to obtain a result, representative, as nearly as possible, of the cost of living and the industrial life of the community as a whole. As many as possible of the main staple articles of Indian production and consumption have been selected, consistent with the possibility of obtaining continuous price quotations and with the avoidance of duplication and also the preservation of proportion as between several divisions and classes into which commodities have been divided. Manufactured articles as well as raw materials have been included though specialised lines have been avoided. Choice was, however, in some cases limited by the difficulty of securing continuous quotations of certain articles. On the whole, the list is a fairly comprehensive one and the items have been classified in thirteen general groups. The following list shows the articles which have been included and the classes into which they have been grouped.

List of Articles.

—	Botanical Names of Source.
I. FOOD-GRAINS—CEREALS.	
1. Rice	Oryza sativa *Linn.*
2. Wheat	Triticum sativum *Linn.*
3. Wheat-flour.	" " "
4. Barley	Hordeum vulgare *Linn.*
5. Jowar or cholam	Andropogon Sorghum *Brot.*
6. Bajra	Pennisetum typhoideum *Rich.*
7. Maize	Zea Mays *Linn.*
8. Ragi or Marua	Eleusine coracana *Gaertn.*
9. Oats	Avena sativa *Linn.*
10. Kodon	Paspalum scrobiculatum *Linn.*
11. Kangni or Kakun	Setaria italica *Beauv.*
12. Sathi	Oryza Sps.
13. China or Vari	Panicum miliaceum *Linn.*
14. Veragu	" " "
II. FOOD-GRAINS—PULSES, PEAS OR SPLIT PEAS.	
1. Gram	Cicer arietinum *Linn.*
2. Arahar or Red gram	Cajanus indicus *Spreng.*
3. Musur	Ervum Lens *Linn.*
4. Mung or Green gram	Phaseolus radiatus *Linn.*
5. Matar	Pisum arvense *Linn.* Pisum sativum *Linn.*
6. Khesari	Lathyrus sativus *Linn.*
7. Urd or Kalai or Black gram	Phaseolus Mungo *Linn.*
8. Kulthi or Horse gram	Dolichos biflorus *Linn.*
9. Moth	Phaseolus aconitifolius *Jacq.*
10. Barbati or Indian bean	Dolichos Lablab *Linn.*
III. SUGARS.	
1. Sugar, refined.	
2. " unrefined (Gur or Jaggery).	
IV. TEA AND COFFEE.	
1. Tea	Camellia Thea *Linn.*
2. Coffee	Coffea arabica *Linn.*
V. OTHER ARTICLES OF FOOD.	
(*i*) *Condiments and spices.*	
1. Aniseed	Pimpinella anisum *Linn.*
2. Black pepper	Piper nigrum *Linn.*
3. Betelnut	Areca Catechu *Linn.*
4. Chillies	Capsicum Sps.
5. Cloves	Eugenia caryophyllata *Thunb.*
6. Cardamom	Elettaria Cardamomum *Maton.*

—	Botanical Names of Source.
V. OTHER ARTICLES OF FOOD—*contd.*	
(*i*) *Condiments and spices*—contd.	
7. Catechu	Acacia Catechu *Willd.*
8. Coriander seed	Coriandrum sativum *Linn.*
9. Cumin seed	Cumenum Cyminum *Linn.* zeylanicum *Breyn.*
10. Ginger	Zingiber officinale *Roscoe.*
11. Methi (Fenugreek)	
12. Saffron.	Crocus sativu *Linn.*
13. Tamarind.	Tamarindus indica *Linn.*
14. Turmeric	Circuma longa *Linn.*
(*ii*) *Animals and animal produce.*	
1. Fowls.	
2. Chicken.	
3. Beef.	
4. Mutton.	
5. Meat, goat.	
6. Eggs, Fowls.	
7. " Ducks.	
8. Milk.	
9. Ghee.	
10. Butter.	
11. Curd.	
12. Kheer.	
(*iii*) *Others.*	
1. Salt.	
2. Fish.	
3. Onion	Allium Cepa *Linn.*
4. Garlic	Allium sativum *Linn.*
5. Potatoes	Solanum tuberosum *Linn*
6. Brinjals	Solanum Melongena *Linn.*
7. Pulbul.	
8. Sago	Metroxylon Sagus *Rottb.*
9. Arrowroot	Curcuma angustifolia *Roxb.*
10. Mahua	Bassia Sps.
Cattle food—	
1. Grass.	
2. Straw.	
3. Bran.	
4. Bhusi.	
VI OILSEEDS, OILS AND OILCAKE.	
Seeds—	
1. Rape and mustard	Brassica Sps.
2. Linseed	Linum usitatissimum. *Linn.*

List of Articles—contd.

——	Botanical Names of Source.
VI. OILSEEDS, OILS AND OIL-CAKE—*contd.*	
Seeds—*contd.*	
3. Sesamum	Sesamum indicum *DC.*
4. Poppy seed	Papaver somniferum *Linn.*
5. Castor seed	Ricinus communis *Linn.*
6. Earthnut	Arachis hypogæa
7. Niger	Guizotia abyssinica *Cass.*
8. Cotton seed	Gossypium Sps.
9. Cashew-nut	Anacardium occidentale *Linn.*
10. Sorguja	Guizotia abyssinica *Cass.*
11. Safflower seed	Carthamus tinctorius *Linn.*
Oils—	
1. Mustard oil	Brassica Sps.
2. Cocoanut oil	Cocos nucifera *Linn.*
3. Linseed oil	Linum utitatissimum *Linn.*
4. Castor oil	Ricinus communis *Linn.*
5. Oil-sesamum	Sesamum indicum *DC.*
6. Safflower oil	Carthamus tinctorius *Linn.*
7. Oil-Groundnut	
8. Oil-mahua	Bassia Sps.
Oilcake—	
1. Rape cake	Brassica Sps.
2. Castor oil cake	Ricinus communis *Linn.*
3. Groundnut cake	Arachis hypogaca *Linn.*
VII. TEXTILES—JUTE.	
Jute, raw	Corchorus capsularis *Linn.* Corchorus olitarius *Linn.*
Jute manufactures—	
1. Twill bags.	
2. Hessians.	
VIII. TEXTILES—COTTON.	
Cotton raw—	
,, ginned	Gossypium Sps.
,, unginned.	
Cotton manufactures—	
Yarns.	
Piece-goods.	
IX. OTHER TEXTILES.	
Silk, raw.	
Wool ,,	
Hemp ,,	Crotalaria juncea *Linn.*

——	Botanical Names of Source.
X. HIDES AND SKINS.	
Cow hides.	
Buffalo hides.	
Goat skins.	
Sheep ,,	
XI. METALS.	
1. Copper braziers.	
2. Spelter, hard.	
3. Pig, iron.	
4. Iron, hoop.	
5. ,, bar.	
6. ,, sheets.	
7. ,, rolled rod.	
8. Galvanised corrugated sheets.	
9. Tin block.	
10. ,, plates.	
11. Yellow metal.	
XII. OTHER RAW AND MANUFACTURED ARTICLES.	
Coal.	
Charcoal.	
Coke.	
Kerosene oil.	
Shellac.	
Saltpetre.	
Indigo	Indigofera Sps.
Tobacco leaf	Nicotikna Tabacum *Linn.*
Myrobalan	Phyllanthus Emblica *Linn.*
Fire wood.	
Cocoanut	Cocos nucifera *Linn.*
Cocoanut kernel	,, ,, ,,
XII. BUILDING MATERIALS.	
Bricks.	
Tiles.	
Lime.	
Surki.	
Sand.	
Kankar.	
Khoa metal.	
Cement.	
Thatching grass.	
Bamboos.	
Teak wood	Tectona grandis *Linn.*
Sal timber	Shorea robusta *Gaertn.*
Jamoon wood	Engenia Jambolana *Lamk.*

Wholesale prices, kept separate from retail prices.

20. Variations in prices affect all classes and individuals in the community, whether producer, dealer or consumer. Wholesale price ratios, especially those of raw materials, being more sensitive than retail prices, reflect industrial and trade conditions, while, from the standpoint of the cost of living, retail prices form the most effective basis for estimating the changes in the purchasing power of money, being, as they are, subject to variations in local and special conditions, and representing, as they do, in any event, the actual cost of the commodities to the consumer. Wholesale price quotations have, therefore, been kept throughout distinct from retail prices and separate statements are published of the two kinds of prices.

The connection between wholesale and retail prices.

21. The retail trade in food-grains in India is still so organised that abnormalities in prices, though much less than formerly, must be expected to occur. It should, however, be remembered that in some cases the connection between retail and wholesale prices is very close, while in others very small indeed. In the case of markets with considerable stocks, the connection between retail and wholesale prices is exceedingly close; wholesale quotations differ slightly from retail prices and the differences are merely the cost and profit of retailing. In some markets the organisation is such that the influence of one individual predominates. This forms a striking contrast to a market in which there are independent dealers. In Muttra, according to Mr. Moreland, Director of Agriculture, United Provinces of Agra and Oudh, one of the big shopkeepers fixes the prices at which he is prepared to sell, and the brokers carry his rates round to the other shops: "it is not necessary that the other dealers should sell at the same rates, but generally they do so with slight variations." In markets which are more or less restricted, "the weighmen come from larger periodical markets in the district, and inform the dealers in the headquarters market of the prices that have been paid, and the dealers then fix the headquarters rates after consulting the Chaudhri. This is very like a ring; outsiders do not bring grain to this market, the supplies being in the hands of these dealers, who get the grain from their agents in the villages."

22. It is also necessary to remember that a close comparison between two small markets is apt to lead to false conclusions. In some markets, sellers can control the supply if they can form, as it were, a ring: in others, cultivators bring grain for sale without previous arrangement and shopkeepers have to watch arrivals before fixing their rates. The daily variation in prices in some small markets is considerable, especially when they deal in exporting commodities and are in touch with the main wholesale trade. The rate at which a change of price takes place depends on the intimacy of the connection with the large wholesale trade markets. The change of price which is produced by this contact is sometimes impeded by local causes. In this connection Mr. Moreland says: "Bulandshahr depends on information from Khurja, Hapur, and Hathras, all of which are in connection with the main wholesale trade of the country. Muttra gets news daily from Hathras, but relies on telegrams from Calcutta and Bombay. In Budaun, Messrs. Ralli Brothers announce their buying rates beforehand, and these set the standard for the season. Fatehpur takes its rates from Bindki market; but Bindki in its turn is governed by Cawnpore, which is within carting radius. Jaunpur gets telegrams from Patna and Calcutta, Basti from various neighbouring districts, and Gonda from Calcutta and Cawnpore. Unao is entirely governed by Cawnpore, twelve miles distant, while Hamirpur with no railway yet, is also dependent on Cawnpore but in a rather curious way. The local supplies of wheat in Hamirpur are normally insufficient; the crop is not held up to a great extent after harvest, and as soon as local supplies are worked off, the rate settles to that of Cawnpore *plus* cost of carting. Gram, on the other hand, is usually available in excess, and hence its price is lower than

that of Cawnpore by the cost of carriage, but if local stocks run short it becomes dearer than Cawnpore by the same amount."

Wholesale and retail prices published separately.

23. Statistics of Wholesale and Retail prices of the commodities mentioned in the list on pages 11 and 12 in all the twenty-four circles, with one exception, *viz.*, the Konkan, where reliable wholesale prices were not available from 1890, have been compiled and are published separately. The sources from which quotations have been obtained and the method in which the statistics have been compiled, are described in detail in Appendix B. It has not been possible to include in each of the circles all the articles in the list, as many of them do not form staples of trade and consumption in some circles, and it has not been always possible to secure continuous quotations for many of them for the entire period under investigation.

INDEX NUMBERS.

Object of index numbers.

24. If all prices went up or down together in the same proportion it would be easy to measure the changes in the value of money. Some prices, however, go up, while others go down, and, in times of great and rapid development, even though they may move in the same direction, they do not all change to the same extent. To obtain a measure of the general trend of prices, resort is had to the method of index numbers. A period is selected as the standard, and with the prices of this period comparisons are made of prices in other years, the prices being expressed in the different years as percentages of the price of the commodity in the standard or basic period. In Appendix C of this Report, the chief points in the construction of an index number are discussed in detail, *viz.*, (1) the selection of a basic period, (2) the selection of commodities of which prices are to be taken, (3) the method of collecting price quotations of the commodities selected and the calculation of the ratios of these prices to those of the basic period, and (4) the averaging of these price ratios.

Period adopted as the base.

25. The basic period selected for the enquiry is the quinquennium, 1890—94. This is a typical or normal period unaffected by such circumstances as famine and unseasonal rainfall. It was impossible to find, during the period under investigation, any consecutive ten years, some portion of which was not seriously affected by exceptional circumstances. It was, therefore, not practicable to select, as the Committee of the British Association recommended, a ten year basic period.

The commodities selected.

26. The commodities selected for the index numbers include raw and manufactured articles and, although it was impossible to include all articles bought and sold in the country, reliable quotations have been collected for a large number of representative commodities and grades of commodities. It will be noted that in the majority of the circles the commodities, of which price quotations have been obtained, are the products of the soil, as is to be expected in a country in which those connected with agriculture are 73 per cent. of the total population.

Sources of price quotations.

27. The sources of these quotations are, as described in Appendix B, the published records of Government, the price currents of the Chambers of Commerce, the account books of merchants, trade reports, and the price registers of the local authorities in most of the districts into which India is divided.

Weighting.

28. Considerable attention has been given to the question of "weighting." Statisticians have disagreed as to whether all commodities should be given the same importance in an index number. It has sometimes been pointed out that the system of averaging which gives an equal importance to all commodities, would not present a correct view of the general price level, the purchasing power of

money being much more affected by a rise or fall in the price of an important article than by a similar fall or rise in the price of an article of little or no importance. In Appendix C, pages 207 to 212, the various methods of weighting have been criticised. It has, with the sanction of the Government of India, been decided to adopt unweighted index numbers generally. In addition to the unweighted index numbers, weighted index numbers for India, Calcutta and Bombay have been constructed to anticipate theoretical criticism, the weights assigned to each class of commodities in these circles being described in Appendix C.

FOREIGN PRICE LEVELS.

Statistics of foreign prices published for selected articles.

29. The collection of price statistics would have been incomplete, without a collection of statistics of the prices prevailing in other countries, of articles similar to those which are exported from and imported into India. Statistics are published showing the prices of wheat, rice, jute, cotton, barley, maize, sugar, tea, coffee, blackpepper, rapeseed oil, cotton yarn, cotton piecegoods, silk, wool, hides and skins, iron, copper, tin, zinc, and coal. It has also been necessary to compare the general rise of prices in various countries, by means of index numbers published by the statistical offices of the United Kingdom, Belgium, France, Germany, Italy, Canada, United States, Australia and New Zealand. They have all been reduced to a base of 1890—94, the average index numbers for which have been taken as 100. Reference has been made to some of these index numbers in Appendix C, which deals with the construction of index numbers.

Sources of foreign prices and index numbers.

30. The sources of the foreign price statistics and of the index numbers are as follows:—for the United Kingdom, the publications of the Board of Trade dealing with prices, the Economist, the index numbers of Sauerbeck and the price statistics on which they were based; for the United States, the publications of the Department of Commerce and Labor; for Canada, the special report on wholesale prices in Canada (R. H. Coates) published by the Department of Labor; for Germany, statistics of prices and index numbers furnished by the Imperial Statistical Office, Berlin, through the British Ambassador; or Italy, statistics sent by the British Ambassador at Rome and "Statica dei Prezzi del frumento del pane, del vino, dello carni, dello burro, e del riso, in Milano" (Milan 1909), "Il costo della veta" by Signor M. Alberti; for Russia, statistics furnished by the British Ambassador in St. Petersburg. The Australian price statistics have been obtained from the Federal Government's Statistician and the New Zealand figures from the Minister of Industries, Commerce and Agriculture. These latter include Government statistics and also those contained in the memorandum on the course of Prices in New Zealand by McIlwraith. The statistics for China have been forwarded by the British Ambassador in Peking, while those for Japan have been collected through the British Embassy, Tokio, and the Imperial Japanese Consul-General, Calcutta. The statistics of prices in Argentina have been obtained through the Consul-General of the Argentine Republic, Calcutta.

AGRICULTURAL STATISTICS.

Statistics of area under cultivation and their sources.

31. The prime factor which determines the price level of agricultural products in a country like India is the total produce of the commodities in the year concerned. In determining the causes of the rise of Indian price levels, it has, therefore, been necessary to compile statistics of the area under crops and their outturn. The statistics of area under crops in each year are published annually

by the Director General of Commercial Intelligence, in Volume I of the Agricultural Statistics. but they are of very varying value in the different provinces. The procedure followed in the different provinces in compiling these statistics is described in detail in Appendix D of this report.

Statistics unreliable in some cases.

32. In areas having a subordinate revenue staff, statistics relating to cultivation are collected by this agency and are, in most cases, fairly correct. But where there is no special agency for the collection of these statistics, they can hardly be relied upon. In Bengal, Bihar and in the permanently settled parts of Assam, except, perhaps, in cadastrally surveyed areas, the figures are practically guesses of the village Chowkidar (policeman). It is true they are reviewed and in some cases revised by district officers, but they also are guided by their general ideas, which may be far from correct.

Special features of statistics of area under cultivation.

33. Statistics of acreage under cultivation have been compiled for each circle from the figures published in the "Agricultural Statistics" for the districts which constitute the circle concerned. The footnotes appended to these statistics will show that the figures are in some cases *primâ facie* inaccurate. In most of these cases local authorities have found it impossible to revise the inaccurate figures and I have consequently been compelled to incorporate them as they are. Some alterations in the figures were, however, necessary for reasons given below:—

As explained in Appendix D, the figures published in the "Agricultural Statistics" for the Punjab and the North-West Frontier Province from 1906-07 have been calculated on an entirely different basis from those published for the earlier years. The provincial authorities found it impossible to revise the figures for the earlier years on the lines of those for the later years. They have, however, kindly furnished figures for the later years revised according to the method followed in the earlier years. and these have been adopted in the tables published with this report. In some provinces, again, figures under certain crops were not available for the earlier years and, in some cases, those under two or more crops were lumped together. These have been split up according to their proportion in later years and the gaps in the earlier years have been filled up in consultation with the local authorities. Some incongruous figures for some districts have also been revised in the light of earlier and later figures.

Statistics of outturn of important crops.

34. Statistics of the outturn of the more important crops are also published for each circle. The method followed in calculating these will also be found in Appendix D.

STATISTICS OF CATTLE.

Statistics of the number of plough and milch cattle.

35. Few questions are of such vital importance to the cultivator as the supply of cattle for agricultural purposes. Statistics showing the number of cattle in each circle have been compiled to test the theory which has repeatedly been put forward by witnesses that the supply of cattle, both of milch cows and plough bullocks, was steadily decreasing in consequence of the closing of grazing grounds and of pathways for cattle in villages, restrictions imposed on the grazing of cattle in forests, the spread of epidemic diseases and the slaughter of cattle for food or for the hide trade. The sources from which the statistics have been obtained and the method which has been followed in their compilation are explained in Appendix D. For reasons therein explained, no great reliance can, I am afraid, be placed on these statistics.

STATISTICS OF RAINFALL.

Importance of rainfall statistics.

36. Most writers on the rise of Indian price levels have held that a primary, if not *the* primary, cause of the rise is a decrease in the supply of agricultural produce due to a deficiency of rainfall. "The rainfall of the year," says Mr. Atkinson in his paper on *Rupee Prices in India, 1870 to 1908*, "has been shown to have had the greatest influence of all conditions on prices in India.

The fact that the crops in India are mainly dependent on the extent of the rainfall is sufficient evidence to show that when the rainfall is deficient, the crops also must be deficient; this results in the supply of necessaries not equalling the demand, and prices rise." Most of the persons consulted by us, in the different parts of India, also laid much emphasis on this question of rainfall as a prime factor in the rise of prices and said that during the last two decades rainfall has been specially deficient and unseasonable in India. To test the validity of these statements statistics of rainfall have been compiled for all the circles for the years 1890-1912 and tables are published showing the monthly rainfall in each circle year by year.

Grouping into seasons.

37. The failure of the monsoon is undoubtedly the greatest danger of Indian agriculture. It is not so much the total rainfall during the monsoons, as its distribution during the several months in which it falls, that has an important bearing on the success or failure of the crops. The months have, therefore, been grouped in the several circles into periods of heavy, moderate, light or no rainfall, and the total rainfall in each of these periods in the different circles is also published.

Seasonal rainfall converted into percentages of the normal.

38. The figures of seasonal rainfall have also been converted into percentages of the normal. The normals have been based on the average yearly rainfall of the longest periods (generally 30 to 50 years) for which statistics are available and have been supplied by the Meteorological Department. A comparison of the rainfall of any year with the average fall of a short period will not justify one to conclude that the rainfall in that year was deficient or excessive. It has, therefore, been necessary to compare the rainfalls of the several years with the average rainfall of a much longer period, *i.e.*, the normal rainfall, instead of the average rainfall of the quinquennium 1890-1894, which has been taken as the base for all other statistics.

Deficiency tables.

39. A separate table is also published showing the years in which the rainfall in the months of heaviest fall has been more or less deficient as compared with the normal. This is based on a table published by Dr. Walker, Director General of Observatories in India, comparing the deficiencies of rainfall in different countries of the whole world. Dr. Walker's table has also been reproduced.

Charts.

40. A series of charts has also been prepared to show, at a glance, for each year and for each circle, the actual and the normal rainfall in the several seasons. The normal has been represented by a straight line, while the fluctuations of the actual have been shown by pillars above or below the line. When these charts are compared with those of prices, the importance of rainfall as a determinant of Indian price levels will be clearly seen.

Methods of compilation.

41. A brief description of the special characteristics of rainfall in the different parts of India and the methods in which the statistics have been compiled will be found in Appendix E.

STATISTICS OF WAGES.

Object of Wage Statistics.

42. The object of the statistics of wages is to indicate the changes in the standard rates of wages, that is to say, changes in the material prosperity of the working classes. Variations in the cost of living affect wages only slowly, and it is necessary to see whether wages have risen in response to the rise in the cost of living and how such rise in wages compares with the rise in the general price level.

Wage Statistics in the "Prices and Wages" unreliable.

43. The principal record of the statistics of wages is the "Prices and Wages," which shows the average wages per month of "unskilled" and "skilled" labour in certain selected (but not always typical) districts in each province since 1884. But the information given is not a reliable index of the fluctuations in the earnings of the different working classes in India. A syce or horse-keeper is

taken as representative of a domestic servant, but the class represented is very unimportant. A common mason, carpenter and blacksmith are taken as types of skilled labourers and one rate of wages is published for all of them, though their remuneration is actually far from equal. The group, "unskilled labour", is represented by only an able-bodied agricultural labourer, which expression itself is but too vague. No discrimination has also been made between the rates of wages of the different working classes prevailing in rural and urban areas and industrial centres, and in many cases, cash wages for labourers employed in towns or their neighbourhood, which are in no way typical of the rate prevailing in agricultural areas, have been returned as rates of wages for agricultural labourers.

44. On the whole, it has been found impossible to utilise the statistics published in the "Prices and Wages" for agricultural labour and for common masons, carpenters or blacksmiths as representing skilled labourers, especially as the statistics are in many cases wholly unreliable.

Collection of Wage Statistics.

45. The first step in the collection of wage statistics in this enquiry was the selection of the different classes of wage-earners and their classification. It was not possible to obtain statistics of wages on as large a scale as that on which those of prices have been obtained, but the ground covered is very considerable. The wages which have been collected are, it is believed, typical of most, if not all, other occupations for which it has not been possible to collect statistics.

Classification of Wage-earners.

46. In Appendix G has been described, in brief, the special features in the collection, classification and compilation of wage statistics. The wage-earners have been divided into four classes—those employed in industries, in important cities with a large population, in smaller towns and in rural areas. The following statement shows the different classes of wage-earners for whom statistics have been collected and the groups into which they have been divided. As in the case of prices, index numbers have been calculated for all the wage statistics and are published separately, the average of the years 1890-94 being taken as the base.

I.—Industrial wages.

Wages in Industries, etc. :—

Jute.
Cotton.
Wool.
Sugar.
Tea.
Coal.
Leather.
Paper.
Brewing.
Railways.
Other Factories and Workshops.

II.—Wages in Important Towns.

Artisans.	General Labourers.	Domestic Servants.
Carpenter. Blacksmith. Mason. Bricklayer. Stone-cutter. Polishman. Brick-moulder. Painter. Guilder. Glazier. Ashphaltman. Grainer. Lineman. Markman. Thatcher and Gharami.	Cooly. Beldar. Driver.	Coachman. Syce. Sweeper. Bhisti. Durwan. Punkha-puller.

III.—Wages in other urban areas.

Artisans.	General Labourers.	Domestic Servants.
Carpenter.	Cooly.	Coachman.
Blacksmith.	Beldar.	Syce.
Mason.		Sweeper.
Bricklayer.		Bhisti.
Brick-moulder.		
Stone-cutter.		
Painter.		

IV.—Rural Wages.

Village Artisans.	Agricultural Labourers.
Village Carpenter.	Ploughman.
Village Blacksmith.	Reaper.
Thatcher and Gharami.	Weeder.
	Transplanter and Sower.
	Driver.
	Others.

STATISTICS OF TRADE.

Statistics of trade how used.

47. The statistics of foreign or external seaborne trade, as published in the compilations of the Commercial Intelligence Department, have been used for several purposes :—

i. For calculating from the declared values average annual wholesale price quotations at the several ports in cases where independent quotations were not available. In the Indian Customs Act, it is provided that the value of the goods imported or exported should represent (1) their wholesale cash price, *less* trade discount for which goods of the like kind and quality are sold, or are capable of being sold, at the time and place of importation or exportation, as the case may be, without any abatement or deduction whatever, except (in the case of goods imported) of the amount of the duties payable on the importation thereof; or (2) where such price is not ascertainable, the cost at which goods of the like kind and quantity could be delivered at such place, without any abatement or deduction except as aforesaid. It is thus possible to use the Seaborne Trade statistics as a source of price quotations.

ii. To show the growth of India's foreign trade and the movements of the trade in the more important commodities, namely, cotton and cotton manufactures, tea, sugar, foodgrains and jute.

iii. To determine the surplus production available for export.

iv. To show the movements of the imports of the necessaries of life and of articles of luxury as indicating changes in the standard of living.

v. For calculating the balance of India's trade with foreign countries.

Statements of foreign trade.

48. Three sets of statements of foreign trade are published, the first showing the imports and exports of the whole of British India from and to foreign countries; the second, the imports and exports of British India excluding Burma from and to Burma and foreign countries, and the third the imports and exports of Burma itself from and to other parts of British India and foreign countries.

49. The imports are in all cases *net* imports both as regards value and quantity, the re-exports having been deducted. Imports from and exports to foreign countries by parcel post have been included, but not, as a rule, the contents of foreign registered letters received and despatched. The imports and exports of

Government stores have also been excluded from these statements. Every one of the three sets of statements of foreign trade shows :—

(1) The declared values of imports year by year from 1890-91 to 1911-12.
(2) The declared values of exports year by year from 1890-91 to 1911-12.
(3) The quantities of imports year by year from 1890-91 to 1911-12.
(4) The quantities of exports year by year from 1890-91 to 1911-12.

The first two sets (*i.e.*, that for India, and that for India excluding Burma) show in addition the values of the imports and exports of all articles calculated at the average prices of the quinquennium 1890—1894.

50. Another set of statements shows the comparison between the declared values of the total imports and exports, and also those of some important classes of articles for each year and the average of the quinquennium 1890-91 to 1894-95, and the distribution of the differences according as they are due to (i) fluctuations in quantities, (ii) fluctuations in prices and (iii) fluctuations in prices on the differences between the quantities of any year and the averages of the quinquennium 1890-91 to 1894-95. The percentage figures under head (ii) above show the extent of the rise or fall in the price-level of the commodities concerned, the average price of the quinquennium 1890-91 to 1894-95 being taken as 100. These statements have been adapted with some amplification from a publication of the Board of Trade, London.

Provincial trade.

51. Statistics are also published of the total trade of the several provinces, carried by road, rail, river and sea and also India's trade with othe countries carried over the land frontier. The value figures for these are not reliable and as they might lead to misapprehension, only statistics of quantities are published. Details regarding the sources and the methods of compiling the statistics of trade will be found in Appendix H.

COMMUNICATIONS.

Improvement in communications.

52. Another set of exhibits shows the development of communications from 1890 onwards, separately for each circle and for the whole of India. It is well-known that in recent years the improvement of communications has played a most important part in the internal development of the country. The growth of railways and other means of communication has done much to bring the different parts of India into contact with one another. Railways have increased with great rapidity since 1881. To-day there are 33,000 miles of railway in India and Burma as compared with 25,300 miles in 1901, 17,300 miles in 1891, 9,900 miles in 1881, 5,100 miles in 1871 and 1,600 miles in 1861. The following table shows the open mileage of railways in India (excluding Burma) during each of the years 1890 to 1912 :—

Year.	Mileage.	Year.	Mileage.
1890	15,865	1902	24,573
1891	16,696	1903	25,452
1892	17,148	1904	25,956
1893	17,826	1905	26,805
1894	18,188	1906	27,503
1895	18,756	1907	28,345
1896	19,365	1908	28,953
1897	20,251	1909	29,962
1898	21,046	1910	30,542
1899	22,606	1911	31,268
1900	23,640	1912	31,981
1901	24,082		

Advent of railways.

53. Before railways were constructed, the cultivator derived little benefit from an abundant harvest. His markets were confined to a small area; and if the supply was greater than the demand, as it would be in a good year, prices fell and he lost the profits from the larger yield and sometimes found it more economical to leave part of his crop uncut. Railways have altered these conditions. They have rendered possible the transfer of supplies from areas of plenty to areas of scarcity. The smallness of the variations in prices in recent years, all over India, even in years of famine, and the feasibility of alleviating distress at a comparatively small cost are perhaps the best justification of railway extension. When one area is suffering from famine, another area is likely to have an abundant harvest, and it is possible for the surplus produce of one part to supply the deficits of another. In fact, famine no longer means scarcity of food supplies but mere scarcity of money to buy food which is always less difficult to meet. It is no longer possible to find, as in the years 1802-1804, a period of terrible famine in the Deccan and Rajputana, while the price of bajra in Gujarat did not rise higher than 27 seers per rupee, for want of means to convey the surplus grains of Gujarat to the famine-stricken districts. In 1864-65 and 1877-79, there was no famine in Gujarat but a very severe famine in other parts of India where owing to facilities of communications grain was exported from Gujarat, so that the price of bajra in Kaira actually rose to 7½ and 9 seers in the two years. In the United Provinces, in 1838, the price of wheat rose in Agra to 13½ seers, while in Khandesh the price of jowar was as low as 61 seers. In 1861 and 1869, there was again a famine in the United Provinces, and no failure of crops in Khandesh. The railway, however, which had brought Khandesh into direct communication with Agra, was the means of levelling up prices so that the price of wheat in Agra was 14 and 12 seers and that of jowar in Khandesh 16 and 12½ seers. During the twelve months ending September 30th, 1900, for example, food grains to the enormous extent of nearly 2,500,000 tons were imported into famine-stricken areas which in ordinary years exported about 250,000 tons. It is evident that in a vast country like India, which is predominantly agricultural and where crop prospects are so widely divergent and distances so great, railways must exercise a great influence over prices.

54. Railway returns, it is interesting to note, show that the ordinary trade, during the last two decades, in millets, pulses and other minor food products has not been less brisk than that in articles of international trade such as wheat, cotton, oilseeds, and that movements of articles of luxury such as sugar, tobacco, spices, etc., have also very largely developed. The advent of the railway has been of special advantage to the peasantry. In all the large productive tracts, the introduction of railways is usually followed by the substitution of central markets, where the producers are brought face to face with dealers and brokers and are no longer dominated by the village shopkeeper who would take over the crop from the cultivators at his own valuation, which is not often that of the market at which he himself disposes of it. The villager is thus brought into touch with the outer world; he learns the ways of trade, and reaps the profit of bountiful harvests. With the railways, there has been a remarkable development of the carting industry owing to the traffic between railway stations and the markets of the interior. Even the smallest cultivator has thus benefited, because his plough bullocks are no longer out of work for nearly half the year, or let out at the lowest possible rate. The owner of a cart now keeps his cattle at work for the greater part of the year at a remunerative rate, since for distances of 30 miles and less, carts compete, generally speaking, successfully with the railway. The main effect of the great extension of railways that has characterised the last 20 years has been the steadying influence described above, which tends to the equalisation of prices. In the tracts which have been recently opened out, the price of produce has obviously risen in accordance with

the intensity of the demand for its surplus elsewhere. The Deccan and other regions of uncertain harvests have great seasonal fluctuations. Now, prices keep within comparatively moderate limits and it is no longer in the power of the local Bunnia to keep up prices higher than in other localities, allowing for the charges of transport.

Statistics of Railway mileage.

55. The statistics published show the progressive open mileage of every railway and of the collective open mileage in each circle in each year from 1890 to 1912. The statements have been compiled from information furnished by the different railways. The Railway Administration reports do not show the mileage of railways by civil districts, but the total mileage of each railway as shown in these reports have been reconciled with the district totals furnished by the different Railway administrations.

Extension of roads.

56. With the extension of the Railway system, it has become more and more necessary to construct roads to feed the railways. Before the advent of railways, roads were the only means of communication for the exportation of surplus produce: and as the harvest season coincided with the drying up of the rivers, there was not much need for bridges except on the great trunk roads, while even on these, permanent bridges have not to this day been constructed over many of the large rivers, ferries or floating bridges doing duty in their place. The former roads were, in many cases, merely embankments across low-lying places with easy graded approaches to rivers and cleared and linked surfaces elsewhere. With the introduction of railways, conditions have altered and a demand for bridged and metalled communications have been created which would give access to the railway line at all times of the year. Railways have thus had a great influence in stimulating progress in road-making and developing the traffic to be carried over them.

57. The extension of Local Self-Government has also had a great influence in the same direction. Most provinces of British India are now provided with District and Sub-district boards, whose primary duty it is to apply the funds at their disposal to the maintenance and improvement of local communications, which have, under this system, been developed to a remarkable extent.

58. Statistics are published showing the progressive total mileage of roads, metalled and unmetalled, in each circle and in all India, year by year, from 1890 to 1912. They have been compiled from information furnished by District and Sub-district boards, Municipalities and Public Works officers regarding roads under their respective control. The figures were not complete in some cases and have involved the most careful examination, allowance having had to be made for the transfer of some roads from one controlling authority to another. Some roads originally metalled have gradually degenerated into unmetalled ones and some unmetalled roads having become unimportant have been gradually abandoned altogether. Variations due to remeasurement, realignment, and erosion by rivers, and sudden increases in mileages in some years by special famine relief works constitute some of the other causes of the peculiar fluctuations observable in the statistics published. In the case of the districts of Lucknow, Ganjam, Coorg, and the hill districts of Assam, it has not been possible to get any reliable information at all and they have accordingly been omitted altogether.

59. Roads and railways, together, have revolutionised the methods of transport, so much so that pack animals, on which the country was chiefly dependent for the purpose, have been almost entirely displaced by wheeled vehicles throughout the greater part of the country. It is only where railways have not penetrated, that pack transport has preserved any important share of long distance traffic, except in sandy or hilly tracts where a considerable amount of local traffic is still dependent on this means of conveyance.

Extension of communication by telegraphs.

60. With the growth of communications by railway and road there has been a considerable increase in telegraphic communications. The telegraph has linked India on to world markets. The Indian Telegraph Department transfers telegrams to the Indo-European Telegraph at Karachi; to the Eastern Telegraph Company at Bombay; and to the Eastern Extension, Australasia, and China Telegraph Company at Madras. It has also wire connections with the Chinese Imperial Telegraphs at Nampaung in the Bhamo District, and with the Siamese Telegraphs at Myawaddy and Sinbyoodine and also interchanges with the telegraphic systems of Ceylon and Portuguese India, and of the Kashmir State.

Reduction in telegraph rates.

61. The original tariff for messages between India and the United Kingdom was £5 per 20 words. In 1868, this was reduced to £2-17-6, and in 1871 it was raised to £4-10-0. In 1875, the word rate was introduced which was fixed at 5½ francs *viâ* Suez or Teheran, and 5 francs *viâ* Turkey. In 1881, the rates were increased to some extent but, in 1885, they were again reduced to 5 and 4½ francs respectively. Since then the rates have been gradually reduced and an important modification has recently been brought into force by which very much cheaper rates are charged for what are called Deferred telegrams. Owing to the reduction in charges in recent years the traffic has developed to an enormous extent.

Growth of telegra business.

62. The following figures have been obtained from the annual administration reports of the Indian and Indo-European Telegraph Departments:—

YEAR.	Mileage of lines.	Total number of Offices.	Number of telegrams (in thousands).	Total receipts (in lakhs of rupees).
1860-61	11,093	145	..	6
1870-71	13,534	197	577	13
1880-81	20,346	254	1.656	39
1890-91	37.070	949	3.407	52
1900-01	55,055	1.939	6.449	93
1903-04	59.692	2.127	7,307	85
1904-05	61,684	2.189	9.098	88
1905-06	64.730	2,309	10,461	92
1906-07	67,537	2,438	11,385	95
1907-08	68,940	2,544	12,750	1,00
1908-09	70,065	2,658	13,007	97
1909-10	72.746	2,762	12,085	86
1910-11	74,828	2.856	13,090	93
1911-12	76,571	2,958	14,720	1,04

63. In many inland parts of India, to-day, merchants daily receive copies of Reuter's cables containing the prices of various staples prevailing in the great markets of Europe. It has frequently been pointed out that with the great increase in communications it is now possible for a Calcutta merchant to contract, through a clerk and the telegraph, with the manufacturer or dealer, at any of the world's great centres of commerce, however distant, to sell him jute, hides, oilseeds, cotton, shellac or other Indian produce. Mr. D. A. Wells in his book, "Recent Economic Changes," quotes his own experience. He journeyed from New York to Washington with an eminent Boston merchant engaged in the Calcutta trade. Calling upon the merchant the same evening after arrival in Washington he said "Here is something, Mr.————, that may interest you. Just before leaving State Street, in Boston, yesterday forenoon, I telegraphed to my agent in Calcutta, 'If you can buy hides and gunny-bags at — price, and find a vessel ready to charter, buy and ship.' When I arrived here (Washington) this afternoon (4 P.M.), I found awaiting me this telegram from my partner in Boston, covering another from Calcutta, received in answer to my despatch of the previous day, which read as follows: 'Hides and Gunny-bags purchased,

vessel chartered and loading begun.' Here then, as an every-day occurrence, was the record of a transaction on the other side of the globe, the correspondence in relation to which travelled a distance equivalent to the entire circumference of the globe, all completed in the space of little more than twenty-four hours."

FREIGHT STATISTICS.

Importance of freight statistics.

64. The importance of freights as a factor in determining prices, especially those of the great staple products of agriculture and manufacture, is well known. Freights have had a very great influence in the last 20 years in affecting *relative* price levels not only in different countries, but in different parts of the same country and it was clear from the outset of this enquiry that without any effort to measure the extent of the changes in the cost of maritime and Railway transport, this report would be seriously defective.

65. The decrease in Railway transportation charges in India, during recent years, has had very important effects and on this important point it is worth while to quote the remarks of the Famine Commission of 1898:—

> " It is clear that the very marked tendency to equalisation of prices throughout India is due to the great extension of railways and to the opening up of large tracts of country formerly provided with inadequate means of communication. On almost all railways in India the sanctioned rates for grain vary from one-third to one-tenth of a pie per maund per mile . . . . In 1880, according to the Famine Commissioners, the charge for transport between the most distant parts of India connected by rail was about one anna per seer, and grain could be bought costing 24 seers per rupee in Northern India and sold with fair profit in Southern India at 8 seers the rupee. At the present time, grain would be carried 1,000 miles for a little over 10 annas per maund of 40 seers; and wheat selling in the Punjab at 12 seers the rupee could, if on the line of rail, be placed off 1,000 miles and sold at 10 seers per rupee."

66. Statistics have accordingly been compiled of the railway transportation charges for important articles of commerce for selected leads. Maritime transportation charges from Calcutta, Bombay, Madras and Karachi to foreign ports have also been tabulated and also for some classes of articles from London to the Indian Ports. The sources from which the various rates have been obtained and the methods according to which they have been tabulated are explained in Appendix J.

POPULATION STATISTICS.

Why population statistics have been compiled.

67. Statistics of population have been compiled from the census reports of 1891, 1901 and 1911. In the first place, it is necessary to see whether population has increased more rapidly than the means of subsistence. In the second place, an analysis of the census tables of occupation might give indications regarding changes in the industrial organisation of India and show whether there is a continuous exodus into towns where wage-earners obtain better remuneration for their labour. The statistics of population might also be valuable as affording a rough means of judging the effect of the rise in price levels. Given the increase of prices during the period under examination, the earnings during the same period of those engaged in agriculture, manufacture or commerce, or of those belonging to professions, not to mention the less definite category of the general unskilled labourers, and also the numerical strength of the different classes as shown in each of the census reports, it might be possible to gauge, to some extent, the effects of the price changes on the different sections of the population and on the country as a whole. In India, it is extremely difficult to show the

number engaged in each occupation. This, however, is a difficulty which is not confined to India alone. In the United States and in Germany, it has been held that a population census cannot be expected to give the requisite information regarding occupation, and that a comprehensive industrial survey obtained by detailed investigation and spread over a considerable time is to be preferred. In the report of the Census of England and Wales for 1891 it is said, "A census . . . does not supply data which are suitable for minute classification or admit of profitable examination in detail. The most that it is reasonable to expect from data so collected is that they shall give the means of drawing such a picture of the occupational distribution of the people as shall be fairly true in its main lines, though little value can be attached to the detailed features. It is not wise to demand from a material a result for the production of which it is unsuited." Experts in industrial economics have shown that in the English census also the returns of occupation are incomplete in important particulars.

Classification of population according to occupation.

68. For the purposes of this enquiry abstracts have been compiled from the occupation tables of the census reports for 1901 and 1911, showing the occupation of the population of the different circles and of British India as a whole under the following main heads :—

A.—PRODUCTION OF RAW MATERIALS.
I. Exploitation of the surface of the earth—
  1. Pasture and Agriculture—
    Income from rent of agricultural land.
    Ordinary cultivators.
    Farm servants and field labourers.
    Growers of special products.
    Raising of farm stocks.
    Others.
  2. Fishing.
    Hunting.
II. Extraction of minerals—
  Mines—
    Coal.
    Others.

B.—TRANSFORMATION AND EMPLOYMENT OF RAW MATERIALS.
III. Industry—
  Textiles.
  Hides, Skins, etc.
  Wood.
  Metals.
  Ceramics.
  Chemical products, etc.
  Food industries.
  Industries of dress and the toilet.
  Building industries.
  Industries of luxury, etc.
  Other industries.
IV. Transport—
  Transport by water.
  " by road.
  " by rail.
  Other Transport.
V. Trade—
  Banks, etc.
  Trade in textiles.
  Trade in other foodstuffs.
  Other trades.

C.—PUBLIC ADMINISTRATION AND LIBERAL ARTS.
VI and VII. Public force and Public Administration.
VIII. Professions and Liberal arts.
IX. Others.

D.—MISCELLANEOUS.
X. Domestic Service.
XI. Others.
XII. Unproductive.

69. It has not been found possible to compile a similar abstract for the census of 1891, on account of the many points of difference in the classification, and, more specially, as no differentiation was attempted in the census of 1891 between makers and sellers, who have been grouped under entirely different classes in the census of 1911. The reclassification of the figures of 1891 would, therefore, necessitate the splitting up of a large number of heads arbitrarily, to bring them into line with those of the 1901 and 1911 censuses. No reliance could be placed on a compilation in which figures had to be manipulated arbitrarily and any comparison with manipulated figures would be altogether useless.

70. The difficulties of compiling occupation tables and the inaccuracies inherent in the statistics published in the census reports are discussed in Appendix K.

Factors affecting growth of population.

71. The most important factor affecting the growth of population between 1891 and 1911 was famine. The familiar furies always in the train of famine are cholera, dysentery, and fever which play havoc with an already exhausted and enfeebled population. In years of famine, in the last two months of the hot weather, when the stress on the people reaches its climax, the danger of cholera is particularly great. It has been estimated that, during the two famines of 1896-97 and 1899-1900, the death roll exceeded the normal mortality of non-famine years by 5,000,000, of which the greater proportion occurred in Native States. This abnormal mortality was, however, due, only in a small degree, to actual starvation; cholera, dysentery, fever, and other epidemics claimed most of the victims. Another important factor to be remembered in connection with the statistics of population is the plague which commenced in the city of Bombay in September 1896. Between the date of the first official intimation of the existence of plague and the census of 1901, three-quarters of a million had died of this dreadful disease. Since the Black Death of the fourteenth century there has never been such mortality from plague as in India between 1896 and 1912. The mortality was even from 70 to 85 per mille, though at times it was considerably higher. The Punjab had lost by 1912 about 2,250,000 persons from plague out of a total population of under 20,000,000; the mortality in that Province was highest in the villages, but some of the towns also suffered severely, the town of Dinga having had the phenomenal mortality of 119·20 per mille in 1907. It is interesting to note that the million limit in the plague mortality of all India in any single year was not reached till 1904, when 1,143,993 deaths were recorded. There were occasional fluctuations, as in 1908, when the plague mortality for all India dropped to 156,000, while in the previous year it was 1,315,000. It is indeed a remarkable thing that the statistics of population show the increase, which they do, between 1891 and 1911, when the period had witnessed two of the greatest of famines and for three-quarters of the time plague had raged throughout the country in a more or less virulent form. At the same time remarkable economic changes have been at work—railways have been constructed; irrigation extended; jute, cotton, and tea cultivation developed; coal mines in north-eastern India, gold mines in Mysore, jute and cotton mills, etc., have all increased in number; and all these have resulted in increased prosperity and the opening up of many new avenues of employment.

RENT STATISTICS.

Necessity of compiling rent statistics and its difficulties.

72. Rent statistics are also published in order to show how far landlords have benefited by the rise in the prices of Indian produce. If by the opening up of the various parts of the country by railways and roads, exports have been encouraged (these exports being chiefly of agricultural produce), the effect of the development of India's external trade may, in some degree, be to give a part of the resulting profit to landlords in the shape of increased rents. The pitfalls in this part of the work are more numerous than in any other. It has been necessary to verify every step in personal consultation with experienced officers of the provinces for which it has been possible to publish rental statistics. A single statement of fact hardly applies even to a single province without very large exceptions. The chief difficulties are—(1) The increasing accuracy of the returns of rents, resulting in the rise being overstated. This is a very serious matter and in the Revenue Administration Reports of most zemindari provinces we find congratulatory remarks on the progress made in improving the records. One Director of Land Records has said that this fact robs the statistics of all value for comparative purposes. (2) Sudden changes in the course of settlement. It would, in some cases, be statistically inaccurate to compare the districts where the settlement has been revised during the period

under investigation with districts of the same province where no revision has taken place within that period, because in the former case there will be a sudden rise justified by events, some of which occurred before the period 1890-1911: (3) the large differences in the classification of land tenures in the several provinces is very puzzling: (4) grain rents are also a source of difficulty, and each province it may be said, has its own peculiarities in this respect. The figures given in Administration Reports sometimes include, for the United Provinces, for example, an estimate of the value of rents in kind and the value of such rents has gone up automatically with the increase of prices. If cash rents could have been estimated, it would still be most difficult, even if we were able to get at the real rise, to say how far this rise reflected a rise of prices. The tenants are under some sort of protection as regards the period when rents may be raised, and the extent to which the rents may be enhanced must be taken into consideration. The rent laws, such as those of Bengal and the United Provinces, ordinarily allow rents being enhanced in the same proportion as the rise in the prices of produce, after due allowance has been made for the rise in the cost of cultivation.

73. Rent statistics in Revenue reports, although giving a fairly adequate indication of the fact that rents have risen during a certain period, cannot be taken as indicating altogether the extent to which rents have been influenced by prices. Moreover, we may eliminate the effect of increased cultivation by taking the incidence per acre, but there will still remain to be considered the changes in the character of the cultivation, such as the extension of cultivation to inferior lands or the introduction of irrigation.

Statistics published and their sources.

74. The rent statistics published are for the United Provinces, the Central Provinces and the Punjab. For Bengal and also for Bihar and Orissa, statistics showing the increase in the amounts of road cess, which are based on rentals, are published for typical districts and these will indicate, to some extent, the increase in the rents paid to landlords. The sources from which these statistics have been obtained and the reasons for which it has not been possible to publish the statistics for other provinces are explained in Appendix L.

MISCELLANEOUS STATISTICS.

Statements showing absorption of gold and silver in India.

75. Statements have been prepared showing the absorption of gold and silver in India. The quantity and the value of gold produced in India, the quantities of gold imported and exported, the net imports of gold, the total receipts, the disposal of the progressive total together with the absorption of the year, and the average rate of exchange are all shown in separate columns in the statement. The absorption of gold in India rose from Rs. 6,20 lakhs in 1890-91 to Rs. 11,97 lakhs in 1903-04, to Rs. 22 crores in 1907-08, and to 27,19 lakhs and 27.11 lakhs, in 1910-11 and 1911-12 respectively, so that the remark of Seyd in 1868 in his work on "Bullion and Foreign Exchanges" that "except during the few years of an occasional stagnation of trade, India is always an importer of bullion to a considerable amount, sufficiently so indeed as to alarm Europe" is still true. It is interesting also to note that the remarkable increase in the absorption of gold has not been at the expense of silver. India has also been absorbing a much larger quantity of silver than before.

Balance of Trade.

76. Another statement shows how the Balance of trade in India has been adjusted year by year since 1876-77. It is necessary to give a few explanations in regard to this statement. On the one side of the account are the payments due to India for her exports, for the import of capital into India, for remittances from foreign countries to persons residing in India including tourists: on the other side, we have the payments due by India for imports from abroad, the Secretary of State's drawings, the interest on capital invested in India through private channels, investment in other countries of the earnings of foreign

merchants, lawyers and other professional men doing business in India, and employés in State and private service, the earnings of foreign steamers employed in the coasting and foreign trade of India, remittances to Indians residing in foreign countries and premiums on policies issued by foreign insurance companies, etc. It is impossible to estimate many of these items with any pretence to accuracy ; I have, therefore, included in the statement only such items for which statistical data are available. The sea-borne trade figures of imports and exports in this statement exclude Government stores, as the former are paid for by Council bills, and the value of exports comparatively very small. Frontier trade has also been neglected, although in recent years it has been of some importance, the grand total in 1910-11 of exports and imports having been 9½ crores of rupees. According to statistics, it generally results in a net import into India of articles to the value of about 1½ crores. Doubt has, however, been expressed as to whether the balance is in favour of or against India, and for the present purposes I have considered it best to neglect the frontier trade altogether. In recent years, the Secretary of State has always attempted to regulate his drawings of Council bills as far as possible in accordance with the demands of trade, and the total amount of his bills has generally been in excess of the amounts required by him to meet his sterling liabilities. As explained in Appendix M, these extra amounts have been taken to strengthen the portions of the Currency and the Gold Standard Reserves held in England. The imports and exports of enfaced rupee paper are only part of what should be classified under transfers of securities. The figures include only the amounts which pass through the Public Debt Office accounts. Securities, such as shares of jute or cotton mills, are sometimes remitted to and from India, but their amount cannot be estimated with any accuracy. The declarations in the bills of entry for imports and in the shipping bills for exports, which are examined by Custom House Officials, show the wholesale cash price *less* trade discount for which goods of like kind and quality are being sold at the time and place of importation and exportation respectively. The declared import prices, therefore, include shipping charges and freights, while the values of exports exclude charges for freight. In a statement of India's balance of trade no adjustment on account of freight is, therefore, generally necessary, except for the coasting trade. As regards the balance left for adjustment, it should be noted that a small percentage of under or over-declaration in the values of exports or imports may make a serious difference in the total figures. An error of two or three per cent. makes a difference of several crores of rupees. Thus, an over-valuation of only one per cent. for exports and an under-valuation to the same extent for imports would result in an error for 1911-12 of more than 3 crores of rupees in the final result. It should also be remembered that the balance of trade of a country is never settled within any precise twelve months, but if a series of years be taken the balance outstanding at the end of the period should not differ substantially from that outstanding at the commencement.

BRIEF ACCOUNT OF THE INDIAN CURRENCY SYSTEM AND ESTIMATE OF RUPEES IN CIRCULATION.

77. Many writers have held that the change in the system of Indian Currency from a silver to a gold standard has exercised a very important influence on the general price level of India. Some have also held that prices have gone up in India in consequence of the heavy coinage of rupees by Government in the last decade, which in their opinion has led to a redundancy of rupees in circulation. It has, therefore, been considered desirable to give in Appendix M a brief account of the changes in the Indian Currency system and of the circumstances which necessitated the adoption of a gold standard. The total amount of rupees in circulation from time to time has also been estimated, and a memorandum added showing the details of the calculation.

CHAPTER IV.

Analysis of Variations in Price Levels.

What the index numbers show.

78. The index numbers of wholesale prices for the several classes into which commodities have been divided and for the different economic circles have been summarised to show—

(1) the extent of the rise in the general level of prices in India ;
(2) whether the rise has affected all classes of commodities alike or is especially marked in particular classes : and
(3) whether the rise has or has not been especially marked in any of the homogeneous economic circles.

THE EXTENT OF THE RISE OF PRICES.

Wholesale prices more sensitive than retail prices.

79. The next four tables show the index numbers of wholesale rupee prices for India of all classes of commodities, as well as those of their equivalents in gold converted at the respective rates of exchange of the different years concerned. Wholesale prices have been used as they are more sensitive than retail prices in reflecting industrial and trade conditions. Retail prices represent the cost of commodities to the consumer and, for estimating variations in the cost of living, form a better guide than wholesale prices. Retail prices in India, however, correspond in their movements generally with wholesale prices, especially because, unlike European countries, the cost of retailing in India is extremely small. The index numbers of retail prices in the different economic areas have also been published and will be examined later on in showing how far wages have risen *pari passu* with the increased cost of living.

Smoothed averages eliminate effects of temporary causes.

80. The fluctuations in price levels have been large in the majority of the groups of commodities. The prices of many groups have moved up and down more or less rapidly, and the effect of temporary causes is clearly perceptible in the variations from year to year. Thus, when agricultural conditions have been so unfavourable as to cause a decrease in the outturn of agricultural products, the prices of these products have risen: and with favourable agricultural conditions and an increase in the supply, prices have gone down. To eliminate the effects of these temporary causes, smoothed averages are published for periods of five years, the first quinquennium consisting of the basic period, and the subsequent quinquennial being made up of the last four years of the previous quinquennium and the year immediately following it.

Index Numbers for India of Rupee Prices of different groups of articles for the years 1890-1912.

Years.	Foodgrains—Cereals.	Foodgrains—Pulses.	Sugars.	Tea and coffee.	Other articles of food.	Oilseeds, oils and oilcake.	Textiles—Jute.	Textiles—Cotton.	Other textiles.	Hides and skins.	Metals.	Other raw and manufactured articles.	Building materials.	General Average.	General Average of Gold prices.
1890 .	93	97	99	95	99	97	92	102	101	95	98	100	99	97	113
1891 .	99	100	100	94	97	98	94	96	97	95	98	98	99	98	106
1892 .	110	107	98	103	101	101	105	95	95	96	100	99	99	103	100
1893 .	103	101	102	98	103	101	103	105	104	105	100	102	101	102	96
1894 .	95	95	101	110	100	100	106	102	103	109	104	101	102	100	85
1895 .	94	102	98	100	94	104	103	102	99	120	105	106	104	101	89
1896 .	109	114	98	94	99	109	104	102	92	111	104	108	107	106	99
1897 .	148	159	101	83	110	114	92	98	88	109	105	103	109	121	120
1898 .	109	115	100	78	110	101	89	91	84	113	106	101	112	106	109
1899 .	100	102	97	71	109	101	97	87	94	124	122	103	113	104	108
1900 .	134	139	104	67	120	122	109	108	88	115	137	112	116	122	126
1901 .	116	130	101	66	117	118	101	104	83	118	121	107	113	116	120
1902 .	109	116	91	65	108	114	95	102	84	126	116	104	120	111	115
1903 .	101	106	92	66	106	100	103	106	93	136	116	106	122	107	111
1904 .	97	99	96	65	106	95	109	121	91	141	113	110	125	106	110
1905 .	112	115	105	65	115	112	127	113	98	148	115	112	128	116	120
1906 .	132	140	99	65	124	132	157	121	98	164	126	118	131	129	134
1907 .	139	147	99	72	125	141	154	123	102	161	137	123	134	133	138
1908 .	168	179	106	68	124	145	119	121	86	150	121	122	136	143	147
1909 .	146	148	109	71	124	131	111	119	93	152	116	122	138	133	129
1910 .	127	124	112	79	130	143	119	141	96	164	118	127	142	132	137
1911 .	126	122	109	83	133	149	144	145	95	159	119	126	146	134	139
1912 .	143	141	111	85	136	156	160	137	98	172	128	132	149	111	147

Index Numbers for India of Gold Prices of different groups of articles for the years 1890-1912.

Years.	Foodgrains—Cereals.	Foodgrains—Pulses.	Sugars.	Tea and coffee.	Other articles of food.	Oilseeds, oils and oilcake.	Textiles—Jute.	Textiles—Cotton.	Other textiles.	Hides and skins.	Metals.	Other raw and manufactured articles.	Building materials.	General Average.	General Average of Rupee prices.
1890 .	109	113	115	112	116	113	108	110	118	112	115	117	116	113	97
1891 .	107	108	108	102	105	106	102	104	105	103	106	106	107	106	98
1892 .	107	104	96	100	98	98	102	92	92	93	97	96	96	100	103
1893 .	97	95	96	93	97	98	98	99	98	90	94	96	95	96	102
1894 .	80	80	85	93	84	85	90	86	87	93	88	85	86	85	100
1895 .	83	90	87	89	83	92	91	90	87	106	93	93	92	89	101
1896 .	102	106	92	88	93	102	98	95	86	104	97	101	100	99	106
1897 .	147	158	100	83	109	113	92	97	87	109	104	102	108	120	121
1898 .	112	119	104	81	114	104	92	94	87	117	110	104	116	109	106
1899 .	104	106	101	74	113	105	101	90	98	129	127	107	117	108	104
1900 .	138	143	108	69	124	126	113	111	91	119	142	115	120	126	122
1901 .	120	134	105	68	121	122	105	107	86	123	125	110	122	120	116
1902 .	113	120	94	68	112	118	99	105	87	131	120	107	124	115	111
1903 .	105	110	96	69	110	104	107	110	96	142	120	110	126	111	107
1904 .	100	103	100	68	110	98	114	125	94	147	117	114	130	110	106
1905 .	116	119	109	68	119	116	132	117	102	154	119	116	133	120	116
1906 .	137	145	104	68	129	137	164	126	102	171	131	123	136	134	129
1907 .	144	152	103	75	129	146	160	127	106	168	142	127	139	138	133
1908 .	173	184	110	71	128	149	123	125	89	156	125	126	140	147	143
1909 .	151	153	113	74	129	136	116	123	96	158	120	126	143	138	133
1910 .	132	129	117	82	135	148	124	146	100	171	123	132	147	137	132
1911 .	131	127	114	87	138	155	150	151	99	166	124	131	152	139	134
1912 .	148	146	116	89	142	162	167	142	102	180	133	137	155	147	141

Quinquennial average Index Numbers for India of Rupee Prices of Different Groups of articles for the years 1890-1912.

1890-94 .	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100*
1891-95 .	100	101	100	101	99	101	102	100	100	105	101	101	101	101	95
1892-96 .	102	104	99	101	99	104	104	101	99	108	103	103	102	102	94
1893-97 .	110	114	100	97	101	106	102	102	97	111	104	104	105	106	98
1894-98 .	111	117	100	93	103	106	99	99	93	112	105	104	107	107	100
1895-99 .	112	118	99	85	104	106	97	96	91	115	108	104	109	108	105
1896-1900	120	126	100	79	110	109	98	97	89	114	115	105	111	112	112
1897-01 .	121	129	101	73	113	111	98	98	87	116	118	105	114	114	117
1898-02 .	114	120	99	69	113	111	98	98	87	119	120	105	116	112	116
1899-03 .	112	119	97	67	112	111	101	101	88	124	122	106	118	112	116
1900-04 .	111	118	97	66	111	110	103	108	88	127	121	108	120	112	116
1901-05 .	107	113	97	65	110	108	107	109	90	134	116	108	123	111	115
1902-06 .	110	115	97	65	112	111	118	113	93	143	117	110	125	114	118
1903-07 .	116	121	98	67	115	116	130	117	96	150	121	114	128	118	123
1904-08 .	130	136	101	67	119	125	133	120	95	153	122	117	131	125	130
1905-09 .	139	146	104	68	122	132	134	119	95	155	123	119	133	131	135
1906-10 .	142	148	105	71	125	138	132	125	95	158	124	122	136	134	139
1907-11 .	141	144	107	75	127	142	129	130	94	157	122	124	139	135	140
1908-12 .	142	143	109	77	129	145	131	133	94	159	120	126	142	137	142

Quinquennial average Index Numbers for India of Gold Prices of Different Groups of articles for the years 1890-1912.

1890-94 .	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100†
1891-95 .	95	95	94	95	93	96	97	94	94	99	96	95	95	95	101
1892-96 .	94	95	91	93	91	95	96	92	90	99	94	94	94	94	102
1893-97 .	102	106	92	89	93	98	94	93	89	102	95	95	96	98	106
1894-98 .	105	111	94	87	97	99	93	92	87	106	98	97	100	100	107
1895-99 .	110	116	97	83	102	103	95	93	89	113	106	101	107	105	108
1896-1900	121	126	101	79	111	110	99	97	90	116	116	106	112	112	112
1897-01 .	124	132	104	75	116	114	101	100	90	119	122	108	117	117	114
1898-02 .	117	124	102	72	117	115	102	101	90	124	125	109	120	116	112
1899-03 .	116	123	101	70	116	115	105	105	92	129	127	110	122	116	112
1900-04 .	115	122	101	68	115	114	108	112	91	132	125	111	124	116	112
1901-05 .	111	117	101	68	114	112	111	113	93	139	120	111	127	115	111
1902-06 .	114	119	101	68	116	115	123	117	96	149	121	114	130	118	114
1903-07 .	120	126	102	70	119	120	135	121	100	156	126	118	133	123	118
1904-08 .	134	141	105	70	123	129	139	124	99	159	127	121	136	130	125
1905-09 .	144	151	108	71	127	137	139	124	99	161	127	124	138	135	131
1906-10	147	153	109	74	130	143	137	129	99	165	128	127	141	139	134
1907-11 .	146	149	111	78	132	147	135	134	98	164	127	128	144	140	135
1908-12 .	147	148	114	81	134	150	136	137	97	166	125	130	147	142	137

* General average of Gold Prices.

† General average of Rupee Prices.

Fluctuations in Gold and Rupee prices.

81. During the five years, which have been taken as the base for the purpose of calculating index numbers, the gold price of silver declined steadily and the rate of exchange between India and England fell from 18·089*d.* to 13·1*d.*, while the rupee prices of commodities fluctuated within moderate limits. They rose gradually six points in the first three years and then dropped three points in the next two years. Gold prices of commodities, on the other hand, fell in those years steadily from a level of 113 to 85, or 25 per cent. The gold and rupee index numbers in these five years, therefore, differ remarkably. The steady fall in the gold value of the rupee was accompanied by a steady decline in the general (gold) price level until 1894, when, as just mentioned, it stood at 85, or 15 points below the general average of the five years 1890-1894, while the index numbers of the rupee prices in 1890, 1891, and 1894 were practically the same and those of 1892 and 1893 were only a few points higher. From 1895 to 1897, when exchange was rising from 13·1*d.* rapidly, the rupee price level, as compared with the average of the five years 1890—94, was higher than the level of gold prices. But since 1898, when exchange became practically fixed at 1*s.* 4*d.*, the index numbers of gold and rupee prices moved in the same direction, although the former were higher than the latter by 4 to 5 points. For the later years, therefore, the gold and rupee prices will, either of them, serve the purposes of comparison equally well.

Fluctuations 1890—1899.

82. The tables show that, if rupee prices be taken into account, the general price level was fairly steady from 1890 up to 1895, there being only a slight rise in 1892 and 1893, as already mentioned. With a severe famine prevailing over the greater part of India, the general price level rose to 106 in 1896 and to 121 in 1897. The rise manifested itself chiefly under food-grains—"pulses" and "cereals," the prices of which rose 59 and 48 per cent., respectively, in 1897. There was also an increase of 14 per cent. in "oilseeds and oils," of 10 per cent. in "other articles of food," and of 9 per cent. in "hides and skins," and "building materials." The prices of most of the other classes of articles, except "jute," "tea and coffee" and "other textiles," stood at about the level of the basic period. The prices of "jute," "tea and coffee" and "other textiles" fell to 92, 83 and 88 respectively. The result was that the price level, as a whole, rose only 21 per cent. above the basic period. Agricultural conditions were generally favourable throughout India in the two following years and the general price level dropped to 106 in 1898 and to 104 in 1899; the level in the latter year was thus practically the same as that of 1892 and 1893. In that year the price of "cereals" dropped to the level of the basic period, and that of "pulses" also fell considerably, being only 2 per cent. higher than the level of the basic period. In both cases, prices were considerably lower than the level of 1892. The price of "other articles of food," however, remained at about the high level of 1897, while there was a large increase in some of the other articles. Thus, "hides and skins" rose to 124, "metals" to 122, and "building materials" to 113. In fact, in these latter articles there was almost a continued and steady rise since the beginning of the period under investigation.

Fluctuations 1900-1904.

83. With a disastrous famine in Northern India, the Central Provinces and Bombay, the general price level rose again to 122 in 1900, or higher than the level of 1897. The rise extended, more or less, to all circles and, with the exception of "tea and coffee," "other textiles," and "hides and skins," affected all commodities. As was to be expected, the proportionate increase was greatest in foodgrains cereals, foodgrains pulses and oilseeds, the prices of which rose to 134, 139 and 122 respectively. Thus the rise in the first two groups was not as great as in 1897, indicating that the failure of crops in India, as a whole, was not so great and the area affected by famine not so large as in 1897. The largest increase occurred, of course, in the famine areas, *viz.*, Bundelkhand, the Deccan, Gujarat, Berar, the Central Provinces, Agra Provinces North

and West, and the Punjab. It should also be noted that the prices of "metals" rose to their highest level in that year. Agricultural conditions were, on the whole, favourable throughout India during the next few years, though parts of the country suffered from famine or scarcity. The general price level fell steadily until 1904, when it went down to 106 or about the average of the years 1898 and 1899. Some classes of articles, chiefly "hides and skins" and "building materials" continued to show a steady rise, and some classes showed no remarkable variation, while in some other classes there was an appreciable fall. With a succession of years in which the agricultural conditions were more or less favourable, the prices of foodgrains—cereals and pulses—and oilseeds, all dropped to a level lower than the average of the basic period.

Fluctuations 1905—1908.

84. An era of high prices, however, commenced in 1905, and prices of almost all classes of commodities have been rising since then, practically in all parts of India. In that year, the spring crops in the United Provinces suffered very severely from frost, and drought affected adversely the autumn and spring crops of the following year. The spring crops of 1905-06 in Bombay were almost a failure, resulting in a famine in that presidency. In 1906 and 1907 also, there were disastrous floods in North Bihar and the crops were damaged. Taking India, however, as a whole, the agricultural conditions were not seriously adverse either in 1905 or in 1906. Still these years appeared to have ushered in a new period in the history of Indian price levels, the predominant characteristic of which was the existence of famine prices without famine. The general price level rose from 106 in 1904 to 116 in 1905, 129 in 1906 and 133 in 1907, and it culminated in a rise to 143 in 1908, when there was a famine again in several provinces, notably in Northern India, where the rainfall in 1907 and 1908 was deficient and badly distributed. The largest increase was, as usual, in the areas affected by famine and in agricultural products, *viz.*, cereals, pulses and oilseeds, the prices of which rose to 168, 179, and 145 respectively—points which had not been reached in any previous famines, although more severe in character and more widespread in effect. The price of almost every class of articles, with the exception of tea and coffee and other textiles, stood at a more or less high level.

Fluctuations 1909—1912.

85. With more favourable agricultural conditions, prices of agricultural products commenced to fall again in 1909, but they have generally moved about in the neighbourhood of the high level of the famine year of 1900, or have been even higher. The prices of most other classes of commodities, notably hides and skins, other articles of food, cotton, other raw and manufactured goods, and building materials have gone on increasing practically continuously and steadily.

High level of prices since 1905.

86. On the whole, it seems clear that up to 1905, the fluctuations in the prices of foodgrains and pulses depended largely on the agricultural conditions in India; and that whenever these conditions became unfavourable, prices rose very high, but with favourable agricultural conditions prices tended to return to their old level. But since 1905, favourable agricultural conditions have not succeeded in bringing back prices to their old level, and the famine of 1908, which was not so severe in its extent and intensity as the famines of 1897 and 1900, raised the prices of these commodities to a level much higher than had previously been reached. The price of jute, on the other hand, was generally low in years of famine and was highest in 1905—1907, when it rose to 127, 157, and 154 respectively, when prices of almost all classes of articles were rising. The prices of other articles of food, cotton, hides and skins, metals, other raw and manufactured articles, and building materials have all, except in a few years in which there were unimportant falls in some cases, gone on steadily increasing throughout the period under enquiry.

What the smoothed averages show.

87. The smoothed five-yearly average index numbers, in which the effect of temporary causes is eliminated, show that the general price-level has gone on increasing steadily throughout the whole period of the enquiry, there being an increase of 8 per cent. in the quinquennium 1895-99, of 12 per cent. in the quinquennium 1900-04, of 31 per cent. in the quinquennium 1905-09, and of 36 per cent. in the triennium 1910-12. The largest increase has thus occurred during the last eight years.

CLASSES OF COMMODITIES THAT HAVE RISEN MOST.

Rise almost general in all commodities.

88. With the exception of tea and coffee and other textiles, all the other classes of commodities now stand at a level higher than was ever reached before. As regards tea and coffee, prices dropped steadily from 1894, when exchange, for the first time, retraced its course and began to proceed upwards, till 1902 when it fell to 65. Since then, prices have again been rising with occasional falls and now stand at the level of 85.

Classes of commodities in the order of rise of prices.

89. The following statement shows the different classes of commodities in the price level of which there has been an increase in the quinquennium 1908-12, arranged in descending order of increase—

Hides and Skins	159
Oilseeds and oils	145
Foodgrains—pulses	143
Foodgrains—cereals	142
Building materials	142
Cotton	133
Jute	131
Other articles of food	129
Other raw and manufactured articles	126
Metals	120
Sugars	109

Hides and Skins.

90. The largest increase has occurred in the price of "hides and skins." The price of this class of articles has gone on increasing continuously from 1890; and the only years in which the rise received a check were the years of famine, *viz.*, 1896, 1897, 1900 and 1908, evidently due to a deterioration in the quality of the articles in consequence of the famished character of cattle, and to an increase in the supply owing to increased mortality among cattle, also the result of famine. In the first year, the price fell from a level of 120 to 111, but it rose again to 113 in 1898. In 1900, it fell from a level of 124 to 115, but it rose in 1901 to 118 and to 126 in 1902. In 1908, it fell from a level of 161 to 150, but it rose again to 152 in 1909 and to 164 in 1910, and in 1912, the price-level stood at 172. The price of this class of commodities is governed almost exclusively by the prices prevailing in Hamburg, London, New York and other world markets.

Oilseeds.

91. Taking quinquennial averages, the general rise in the price of oilseeds has been higher than that in foodgrains—pulses and cereals, but the variations from year to year have been much smaller and abnormal rises have kept within much smaller limits. Thus, in the famine year of 1897, the average level for oilseeds for the whole of India was 114, while that for pulses and cereals was 159 and 148 respectively. In 1900, oilseeds rose to 122, while pulses and cereals rose to 139 and 134 respectively. Again, in 1908, the level for oilseeds rose to 145, while that for pulses and cereals rose to 179 and 168 respectively. Of all the oilseeds, the fluctuations have been greatest in linseed, the lowest point having been 88 in 1904 and the highest 182 in 1911: the price stood in 1912 at the level of 175.

Foodgrains—Cereals and Pulses.

92. The next two tables show both annual and quinquennial average index numbers for "foodgrains—cereals and pulses." They indicate that the fluctuations have depended, as already mentioned, on the agricultural conditions of the different years and on the total produce of the crops in India. The disparity

between price-levels in good and bad years is striking. In both the famine years of 1897 and 1900 the average level rose high, but with more favourable agricultural conditions prices declined, and in 1904 they reached a level lower than that of the basic period. After that year, however. they rose rapidly, and in the famine year of 1908 they were higher than in any previous year. Agricultural conditions have been fairly good during the last four years, and, although prices were going down for a time, they rose again in 1912 and are now at a level much higher than previously, barring those years in which the supplies were unusually low owing to famine. In normal years, the produce of cereals and pulses in India (excluding Burma) is sufficient to meet the requirements of the country and to leave a surplus available for export to other countries. In such years the price is regulated by that in the other exporting countries with which it has to compete. In years of famine, however, the food supplies fall short of the requirements of the country itself and enormous quantities of rice have to be imported from other countries, including Burma, and competition sets in with the other importing countries, and prices rule higher than in the great rice and wheat growing countries. The inferior kinds of foodgrains are not exported in good or imported in bad years in any large quantities; and the prices of these rise in famine years and approach those of rice and wheat owing to an increased demand for them caused by the high prices of wheat and rice. The proportionate rise, therefore, in the price of the inferior grains in years of famine is greater.

Index Numbers of Rupee Prices of different articles comprised in the groups " Foodgrains—Pulses " and " Foodgrains—Cereals " from 1890 to 1912.

Years	PULSES.				CEREALS.								GENERAL AVERAGE.
	Gram.	Urd.	Arahar.	General average.	Rice.	Wheat.	Barley.	Oats.	Jowar.	Bajra.	Maize.	Ragi.	
1890 .	95	93	96	97	94	94	94	93	89	94	97	86	93
1891 .	100	101	101	100	96	102	100	92	100	101	106	96	99
1892 .	111	107	109	107	107	114	110	118	113	110	105	119	110
1893 .	101	99	101	101	105	101	104	104	102	102	99	102	103
1894 .	93	100	93	95	98	89	92	93	96	93	93	97	95
1895 .	101	108	105	102	91	93	97	100	95	97	99	88	94
1896 .	118	115	119	114	100	112	123	111	112	114	118	94	109
1897 .	174	147	167	159	131	149	169	149	166	164	171	131	148
1898 .	117	111	120	115	108	112	110	118	104	102	97	116	109
1899 .	106	101	105	102	95	103	104	106	102	105	98	197	100
1900 .	149	132	144	139	114	134	144	129	171	158	139	141	134
1901 .	131	125	133	130	113	120	118	115	116	112	117	131	116
1902 .	114	115	114	116	106	112	115	118	111	107	112	112	109
1903 .	104	103	111	106	104	103	108	114	97	91	94	89	101
1904 .	100	99	105	99	99	98	99	108	91	87	88	89	97
1905 .	115	111	118	115	108	110	114	123	115	116	114	117	112
1906 .	142	135	144	140	130	122	130	132	137	134	146	152	132
1907 .	141	138	153	147	145	129	140	130	131	128	145	160	139
1908	187	174	181	179	161	165	180	154	177	168	198	174	168
1909 .	151	150	147	148	138	153	150	150	148	139	149	164	146
1910 .	123	129	121	124	122	133	124	137	135	135	119	146	127
1911 .	116	140	116	122	126	121	122	128	132	124	126	140	126
1912 .	134	159	133	141	140	134	146	136	159	151	149	156	143

Quinquennial average Index Numbers of Rupee Prices of the different articles comprised in the groups "Foodgrains—Pulses" and "Foodgrains—Cereals" from 1890 to 1912.

Quinquennium.	PULSES.			Pulses. General average.	CEREALS.								Cereals. General average.
	Gram	Urd.	Arahar.		Rice.	Wheat.	Barley.	Oats.	Jowar.	Bajra.	Maize.	Ragi.	
1890—94	100	100	100	100	100	100	100	100	100	100	100	100	100
1891—95	101	103	102	101	99	100	101	101	101	101	100	100	100
1892 96	105	106	105	104	100	102	105	105	104	103	103	100	102
1893—97	117	114	117	114	105	109	117	111	114	114	116	102	110
1894—98	121	116	121	117	106	111	118	114	115	114	116	105	111
1895—99	123	116	123	118	105	114	121	117	116	116	117	105	112
1896—00	133	121	131	126	110	122	130	123	131	129	125	116	120
1897—01	135	123	134	129	112	124	129	123	132	128	124	123	121
1898 - 02	123	117	123	120	107	116	118	117	121	117	113	119	114
1899—03	121	115	121	119	106	114	118	116	119	115	112	114	112
1900—04	120	115	121	118	107	113	117	117	117	111	110	112	111
1901 -05	113	111	116	113	106	109	111	116	106	103	105	108	107
1902—06	115	113	118	115	109	109	113	119	110	107	111	112	110
1903 07	120	117	126	121	117	112	118	121	114	111	117	121	116
1904 -08	137	131	140	136	129	125	133	129	130	127	138	138	130
1905—09	147	142	149	146	136	136	143	138	142	137	150	153	139
1906—10	149	145	149	148	159	140	145	141	146	139	151	159	142
1907—11	141	146	144	141	138	140	143	140	145	137	147	157	141
1908—12	142	150	140	143	137	141	144	141	150	141	148	156	142

Foodgrains—cereals.

93. Taking quinquennial averages, the rise in the different commodities comprised in the group "cereals" has, in the quinquennium 1908—12, been as follows:—

Ragi	156
Jowar	150
Maize	148
Barley	144
Bajra	141
Oats	141
Wheat	141
Rice	137

The rise in the price of wheat has been smaller than the rise in all other articles with the exception of only rice, the acreage under which in the last 5 years was higher than the basic average by 9 per cent. while the acreage under wheat during the same period was smaller than the basic average by 8 per cent. The rise in the price of rice has been the lowest. As explained above, owing to the regulating effect of foreign markets, the prices of rice and wheat have fluctuated within much smaller limits than those of the other articles. Thus, the highest points to which rice rose in the famine years of 1897, 1900, and 1908 were 131, 114, and 161 respectively, and in the case of wheat 149, 134, and 165, but the other articles rose to still higher points. Jowar rose to 166, 171, and 177 respectively; bajra to 164, 158, and 168; maize to 171, 139, and 198; ragi to 131, 197 (in 1899), and 174; and barley to 169, 144, and 180; while the lowest levels to which the different articles fell in 1904 were rice (99), wheat (98), jowar (91), bajra (87), maize (88), ragi (89), and barley (99). This well illustrates the fact that the commodities which form staples of trade in the world markets, fluctuate within much smaller limits than those of which the consumption is confined practically within the country.

Rice.

94. As regards rice, the greatest portion of what is exported, is grown in lower Burma, a country so happily favoured by nature that bad seasons are generally unknown. A much larger quantity is grown in Bengal and Madras which are also, to some extent, immune from the vicissitudes of the seasons. But there are other tracts which are less fortunately situated, where also the staple food is rice and where monsoon rains are scantier and deficiency means disaster. A failure of monsoon in these parts necessarily creates a demand for rice from Bengal, Madras and Burma,

at prices with which prices in foreign markets do not correspond. Indian rice is required in other countries not only for purposes of food supply but also for manufacturing purposes. It has thus to compete not only with rice from other countries but also with other substances which are commonly used for the distillation of spirits and the manufacture of starch—maize and potatoes among other things. A high level of prices in India, therefore, tends to reduce the demand in the external markets and to keep down prices here. As rice is the staple food of nearly five times as many people in India as those who use wheat, the consumption of rice in India is very large, and excluding rice grown in Burma, the supply in the other parts of India frequently proves insufficient to meet the demand, and considerable quantities of Burma rice which would otherwise have been exported to foreign countries are deflected to Indian markets. Comparatively small quantities come from other places also, chiefly Saiaon and Cochin China, but it is the inexhaustible stocks of Burma that tend to keep down prices. In such circumstances the influence of world markets is to keep down prices of rice in India.

Wheat.

95. The conditions affecting the price of wheat are quite different. The wheat we export has to compete with the wheat grown all over Western Europe and with that of the great wheat exporting countries, the United States, Russia and the Argentine Republic. Indian wheat, not being freely taken when harvests and supplies in the other parts of the world are equal to the demand, commands, in foreign countries, prices lower than those ruling for other wheats. When the outturn of wheat in India, in bad years, proves insufficient to meet its own demands, it can be imported only from distant countries. In famine years, therefore, the rise in the price of wheat is proportionately higher than the rise in the price of rice. This also happens on occasions when the supplies in the great wheat-producing countries of the world are largely deficient, and such occasions do not occur infrequently: an indifferent harvest in Europe, a failure in South Russia, a contraction of supply from the United States, a failure in Argentina where the harvests appear to be singularly uncertain, a drought in Australia, may, one or another of them, raise the price of wheat to an unusual level in the world markets. The influence of world markets on the price of wheat in India is thus greater than in the case of rice.

Building Materials.

96. In the price of building materials, there has been a continued and steady rise throughout India, and this is not surprising in view of the great industrial development and increased prosperity which has resulted in an increase in the demand for new mills and factories and for better housing by the population as a whole, and especially in cities and manufacturing centres and other urban areas.

Cotton and cotton manufactures.

97. The prices of both raw cotton and cotton manufactures fell during the earlier period of the enquiry, but since 1902 there has been an almost continuous rise which has been much greater in raw cotton than in cotton manufactures. The average of the former during the last three years was 158, while that of the latter only 131.

Jute and Jute manufactures.

98. The next group includes jute and jute manufactures, the prices of both of which have fluctuated very largely during the period under enquiry. Prices rose steadily up to 1896 when the crop suffered from insufficient and unseasonable rain. There was a large decline in 1897 and 1898 and then prices continued to rise till 1900; but in the next two years they fell again and the average of 1902 was 5 points lower than the average of the basic period. Between 1903 and 1907, there was a continuous extension of the area under cultivation, and in the outturn, which attained its maximum in the latter year. Nevertheless, as in the case of other commodities, there was a steady increase in the average price of this class of goods. In 1908 and 1909, there was a heavy decline, but during the last three years there has been an increase again, and the average level in 1912 was 160, or 3 points higher than the highest level in the past.

Other articles of food.

99. " Other articles of food " includes various kinds of condiments and spices, salt, ghee and milk, and vegetables. The duty on salt has been gradually reduced during the period under investigation. Up to March 1903 it was Rs. 2-8 per maund except in the case of Kohat salt for which the duty was Rs. 2 per Lahori maund of $102\frac{1}{2}\frac{7}{8}$ lbs., and of Mandi salt for which the duty was $7\frac{1}{2}$ annas a maund. In that month it was reduced to Rs. 2, Re. 1-8 and 6 annas respectively, in March 1905 to Re. 1-8, Re. 1-8 and $4\frac{1}{2}$ annas, and in March 1907 to Re. 1, Re. 1 and 3 annas per maund respectively. In calculating the wholesale price of salt, the duty has been excluded throughout the period. The variations in the price of salt, *ex-duty*, have been as follows :—

1890—94	100
1895—99	100
1900—04	100
1905—09	96
1910	91
1911	102
1912	102

100. The variations in the prices of the other articles comprised in this group have been very striking, and they have seldom all moved in the same direction even at the same place. Thus, in Calcutta, while the price of black-pepper rose in 1902 from 141 to 171, the price of turmeric fell from 127 to 78. The index numbers for this group of articles in the different circles depend largely upon the number of articles for which it has been possible to obtain continuous price quotations for the period. On the whole, as shown in the tables, there has been a considerable increase in the price of most of the articles included in this group, the only exception being " salt, " as already mentioned, and some kinds of spices such as ginger and betelnuts in which there has been an appreciable fall. The largest increase has occurred in ghee and milk, the prices of which in 1912 were 54 per cent. higher than those in the basic period. The prices of spices and condiments, as a class, were 28 per cent. higher, and the increase in chillies, which, of all spices, is most largely used, has been 29 per cent. in comparison with the basic period. In other articles also, not included under spices and condiments, there has been a fairly general increase.

Other raw and manufactured articles.

101. " Other raw and manufactured articles " include a large number of commodities which do not fall under any of the other heads. In most of these commodities there has been a, more or less, appreciable increase. The only commodities, in which there has been an appreciable fall, are dyeing and tanning materials, including indigo, and myrobalans, saltpetre, shellac, and coal and coke.

Metals.

102. The prices of metals have risen in harmony with those prevailing in the world markets. The largest increase has occurred in tin block, the price of which has now attained a level of 220. There has been an increase of over 40 per cent. in the prices of hard spelter and braziers copper, which are by far the most important metal from the point of view of Indian consumption, since most of the domestic utensils of the people are made of copper or brass. The prices of other metals have risen only slightly higher than the level of the basic period.

Sugars.

103. There has been a steady decline in the price of imported sugars, owing to competition in foreign markets and the improved methods of cultivation of sugarcane in Mauritius, Java, and Formosa. In the price of the indigenous articles, however, there has been a comparatively large increase since 1904. The increase has been greatest in " gur, " the consumption of which is heaviest.

Other Textiles.

104. The prices of other textiles gradually fell after the first quinquennium and reached the lowest point (83) in 1901. Since then they have fluctuated up

and down but have not gone above 100 except in 1907 (102). The prices now stand at a level of 98. "Other textiles" include raw silk in Bengal and Madras, and wool in Bombay and Karachi, and woollen piece goods in Madras. The price of wool in Bombay has risen to 127 points, but the price of silk in Bengal and Madras has fallen 4 and 34 points respectively. Wool in Karachi stands at 100, and woollen piece goods in Madras at 102.

LOCALITIES IN WHICH THE RISE OF PRICES HAS BEEN GREATEST.

Index number of commodities common to all circles.

105. The next question for consideration is the determination of the localities in which the rise of prices has been greatest. The following tables show the index numbers of the general level of prices in the different circles for the entire period of the enquiry and their smoothed five-yearly averages. In calculating these index numbers, only those groups of articles have been included for which quotations of prices are available in all the circles. The groups omitted are "cotton manufactures," "jute," "other textiles," "hides and skins" "tea and coffee," and "metals." It has not been possible to obtain continuous quotations for these articles, for the entire period of the enquiry, in many of the circles and it is not considered advisable to include them in some circles and exclude them from others, as such a course is likely to vitiate comparison. Moreover, the prices of these commodities in the interior are always in close harmony with those prevailing at the ports, and the price-levels of the different circles are likely to be affected to the same extent by variations in the price ratios of these commodities in different years.

Annual and Quinquennial Index numbers of wholesale General prices of groups of articles common in all circles.

Index numbers of wholesale General prices

CIRCLES.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	No. of Item.
Calcutta	97	98	100	103	102	102	103	118	104	99	1
Bombay	101	97	101	103	98	100	101	108	103	103	2
Karachi	98	99	102	101	100	102	109	121	113	113	3
Madras	98	96	106	104	96	95	99	108	105	99	4
Assam	98	99	99	102	102	104	107	117	112	103	5
Bengal Northern and Eastern .	94	98	101	103	104	99	105	123	104	99	6
,, Southern and Western .	97	96	102	103	102	101	104	123	107	100	7
Chota Nagpur	99	97	101	101	102	103	110	128	112	108	8
Behar	97	98	102	102	101	101	108	138	109	100	9
Agra Provinces East . . .	98	103	99	100	100	106	111	134	101	99	10
Bundelkhand	98	102	106	100	94	102	121	157	108	107	11
Agra Provinces North and West including Oudh.	101	106	100	97	96	105	118	142	105	104	12
Punjab East	100	103	105	99	93	95	115	131	108	109	13
,, West	97	102	104	102	95	100	108	125	110	106	14
Sind	98	98	105	100	99	102	110	118	109	110	15
Gujarat	100	98	100	105	97	98	102	124	107	105	16
Konkan	..	..	..	..	..	..	..	..	..	..	17
Deccan	95	97	106	103	99	99	104	130	110	105	18
Berar	97	96	102	106	99	98	106	129	104	103	19
Central Provinces . . .	96	99	104	101	100	105	113	128	103	103	20
Madras North-East . . .	96	99	108	101	96	97	105	123	111	105	21
,, North	92	94	110	106	98	93	103	128	114	104	22
,, South	95	98	104	105	98	98	102	113	109	104	23
,, West	99	97	102	104	98	99	101	117	111	102	24
INDIA .	**97**	**99**	**103**	**102**	**99**	**100**	**107**	**124**	**108**	**104**	

Quinquennial averages of Index numbers of wholesale

CIRCLES.	1890-94.	1891-95.	1892-96.	1893-97.	1894-98.	1895-99.	1896-00.	1897-01.	1898-02.	No. of Item.
Calcutta . . .	100	101	102	106	106	105	108	110	107	1
Bombay	100	100	101	102	102	103	106	108	108	2
Karachi	100	101	103	107	109	112	117	120	121	3
Madras	100	99	100	100	101	101	106	109	108	4
Assam	100	101	103	106	108	109	111	112	111	5
Bengal Northern and Eastern .	100	101	102	107	107	106	109	112	109	6
,, Southern and Western .	100	101	102	107	107	107	111	114	112	7
Chota Nagpur	100	101	103	109	111	112	116	117	114	8
Behar	100	101	103	110	111	111	114	116	111	9
Agra Provinces East . . .	100	102	103	110	110	110	113	114	109	10
Bundelkhand	100	101	105	115	116	119	127	128	119	11
Agra Provinces North and West including Oudh.	100	101	103	112	113	115	120	119	113	12
Punjab East	100	99	101	107	108	112	119	119	115	13
,, West	100	101	102	106	108	110	115	117	114	14
Sind	100	101	103	106	108	110	114	114	113	15
Gujarat	100	100	100	105	106	107	115	119	118	16
Konkan	..	..	..	..	..	..	..	..	..	17
Deccan	100	101	102	107	108	110	117	121	118	18
Berar	100	100	102	108	107	108	116	120	117	19
Central Provinces . . .	100	102	105	109	110	110	116	116	113	20
Madras North-East . . .	100	100	101	104	106	108	114	116	114	21
,, North	100	100	102	106	107	108	115	119	116	22
,, South	100	101	101	103	104	105	110	113	112	23
,, West	100	100	101	104	105	106	109	112	109	24
INDIA .	**100**	**101**	**102**	**106**	**108**	**109**	**113**	**115**	**113**	

of groups of articles common in all circles.

No. of Item.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
1	115	112	107	104	105	113	126	131	140	127	125	125	131
2	115	109	108	104	104	107	118	122	126	122	131	131	136
3	129	124	126	120	119	126	134	141	151	144	147	146	156
4	119	113	104	101	100	112	121	120	121	119	132	130	129
5	113	114	110	107	105	112	125	133	135	128	123	122	129
6	113	119	111	106	105	116	136	143	146	136	127	135	145
7	120	120	111	107	106	116	135	142	119	136	131	134	141
8	121	116	111	109	110	117	128	134	152	134	128	131	140
9	116	118	112	105	104	116	135	149	160	144	129	128	133
10	119	118	107	102	104	117	135	142	156	132	126	128	137
11	140	126	114	106	101	119	140	140	176	144	134	130	142
12	129	115	110	105	103	120	139	139	166	138	131	135	141
13	133	115	112	108	104	117	129	133	156	138	131	136	150
14	128	114	112	109	103	112	124	129	150	139	131	134	148
15	121	111	112	110	109	116	121	128	142	138	136	143	158
16	137	123	120	104	105	114	127	130	117	133	129	129	142
17	..	..	..	..	..	..	..	..	..	..	..	..	..
18	137	124	114	106	105	114	132	134	146	139	138	139	149
19	137	126	117	113	112	115	130	134	148	139	141	143	150
20	131	117	113	106	102	113	125	132	153	137	130	134	142
21	125	118	110	103	102	115	129	134	142	139	134	135	143
22	126	122	113	100	99	115	127	129	137	138	140	136	143
23	121	118	108	105	105	118	128	133	136	139	141	145	153
24	115	114	104	103	107	116	125	130	133	132	132	136	138
	124	**117**	**111**	**106**	**105**	**115**	**129**	**133**	**145**	**135**	**132**	**134**	**142**

General prices of groups of articles common in all circles.

No. of Item.	1899-03.	1900-04.	1901-05.	1902-06.	1903-07.	1904-08.	1905-09.	1906-10.	1907-11.	1908-12.
1	107	109	108	111	116	123	127	130	130	130
2	108	108	106	108	111	115	119	124	126	129
3	122	124	123	125	128	134	139	143	146	149
4	107	107	106	108	111	115	119	123	124	126
5	110	110	110	112	116	122	127	129	128	127
6	110	111	111	115	121	129	135	138	137	138
7	112	113	112	115	121	130	136	139	138	138
8	113	113	113	115	120	128	133	135	136	137
9	110	111	111	111	122	133	141	143	142	139
10	109	110	110	113	120	131	136	138	137	136
11	119	117	113	116	121	135	144	147	145	145
12	113	112	111	11	121	133	140	143	142	142
13	115	111	111	114	118	128	135	137	139	142
14	114	113	110	112	115	124	131	135	137	140
15	113	113	112	114	117	123	129	133	137	113
16	118	118	113	114	116	125	130	133	134	136
17	..	..	..	..	..	..	..	..	..	..
18	117	117	113	114	118	126	133	138	139	142
19	119	121	117	117	121	128	133	138	141	144
20	114	114	110	112	116	125	132	135	137	139
21	112	112	110	112	117	124	132	136	137	139
22	113	112	110	111	114	121	129	134	136	139
23	111	111	111	113	118	124	131	135	139	143
24	108	109	109	111	116	122	127	130	133	134
	112	**113**	**111**	**113**	**118**	**126**	**132**	**135**	**136**	**138**

Extent of the rise in different circles.

106. The price levels of the different circles have fluctuated largely from year to year, but the fluctuations have been different in different circles. In famine years, the fluctuations were violent and the price levels rose high in most parts of India, but the extent of the rise was not uniform, being greatest in the circles in which, owing to the failure of crops, the shortage of the local supplies in food-grains and other raw materials was largest. The famine of 1908 extended only over Northern India, but the general price level was affected in almost every circle to a greater or smaller extent. In 1911, the seasons were again bad in Gujarat, in the Western districts of the United Provinces, in some parts of the Punjab, and in Sind: and in all the circles comprising these parts there was a substantial increase in the general price level but as the prevailing distress was not very acute, the rise in most of the other circles was comparatively small. The present price level of the circles, which were affected in 1911 and 1912, shows a comparatively large increase but it is probable that with better seasons there will be a fall in the near future. The present price level in the different circles is not, it seems, a reliable guide for determining the extent to which prices have risen in different parts of India. Five-yearly smoothed averages would eliminate the effects of these purely temporary influences and would thus be a better means of gauging the extent to which prices have risen in the different circles. The following figures show the extent of the rise in the general price-level in the several circles in the quinquennium 1908-12, arranged in descending order :—

Class I.—Increase ranging from 40 to 49 per cent. :—

Karachi	49
Bundelkhand	45
Berar	44
Sind	43
Madras South	43
Agra Provinces North and West	42
Punjab East	42
Deccan	42
Punjab West	40

Class II.—Increase ranging from 35 to 39 per cent. :—

Behar	39
Central Provinces	39
Madras North-East	39
Madras North	39
Bengal Northern and Eastern	38
Bengal Southern and Western	38
Chota Nagpur	37
Agra Provinces East	36
Gujarat	36

Class III.—Increase below 35 per cent. :—

Madras West	34
Calcutta	30
Bombay	29
Assam	27
Madras	26
AVERAGE FOR INDIA	38

107. It has not been possible to collect continuous and reliable statistics of wholesale prices of any number of commodities in the Konkan. For this circle, therefore, no statistics of wholesale prices nor any index numbers of such prices have been published. It would, however, as is evident from the index numbers of retail prices, be grouped in class III above.

108. Thus, in 9 circles, the price level has risen 40 per cent. or more over the basic period, 35 to 39 per cent. in 9 circles, and 26 to 34 per cent. in 5 circles only. The increase has been largest in Karachi, Bundelkhand, Berar, Sind, Madras South, Agra Provinces North and West, Punjab East, Deccan, and Punjab West; in most of these circles famine conditions prevailed in both 1908 and 1911-1912 in a more or less acute form and raised the price levels to an exceptionally high level. In Bundelkhand, the price level has been throughout very high from 1905 and was the highest (176) of all circles in the famine year of 1908. In the next three years there was a decline, but the scarcity of 1912 raised the level again, though not to the extent as in Sind and the Punjab.

Rise in the eight years 1905-1912.

109. It has already been pointed out that since 1905 there has been a specially large increase in prices in all circles. Taking the average of the index numbers for the eight years 1905 to 1912, the rise has been above 30 per cent. in the circles mentioned below. It will be seen that the circles contained in this list are the same as shown in classes I and II, the only difference being that the order has been changed in some cases.

Karachi	143
Bundelkhand	141
Agra Provinces North and West	139
Berar	138
Behar	137
Madras South	137
Bengal Northern and Eastern	136
Bengal Southern and Western	136
Punjab East	136
Deccan	136
Sind	135
Agra Provinces East	134
Madras North-East	134
Chota Nagpur	133
Punjab West	133
Central Provinces	133
Madras North	133
Gujarat	131

The price-levels of Foodgrains—Cereals and Pulses—and Oilseeds in the different circles.

110. The next three tables contain the index numbers, by circles, of foodgrains—cereals and pulses—and oilseeds, etc., which are by far the most important staples of trade and consumption in all parts of India. These tables show that in the case of foodgrains—cereals, the rise during 1905 to 1912 has been above 30 per cent in the circles mentioned above: for pulses, about 40 per cent. except in Karachi, Punjab West, Deccan, Madras North-East, Madras North and Madras South; and for oilseeds also, about 40 per cent., except in Bengal Southern and Western, Chota Nagpur, Behar, Sind, Gujarat, Madras North-East, and Madras North. The comparatively small rise in the price of pulses in Karachi has been more than made good by the large rise under other articles of food and building materials; in Punjab West, by the rise under other articles of food, cotton and other raw and manufactured articles; and in the Deccan by the rise under cotton; in Madras South, the high rise in the prices of building materials has compensated for the comparatively small rise in pulses; and in Madras North-East and Madras North, the small rise in the prices of foodgrains—pulses and oilseeds has been counterbalanced by a comparatively large rise under cereals and also cotton in the latter circle. In Bengal Southern and Western, Chota Nagpur and Behar the rise under foodgrains and building materials has been sufficient to make up for the deficiency under oilseeds; and in Sind and Gujarat there has been a large rise under cotton and building materials.

111. In Calcutta and Madras West, there has also been a rise of over 30 per cent. under cereals and about 40 per cent. under oilseeds, as in the cases mentioned above. But in Calcutta, the comparatively small rise under sugar, other articles of food and other raw and manufactured articles, has brought down the general average below 130. In Madras West, the low averages of sugar, cotton, pulses and other articles of food have not allowed the general average for the eight years to go beyond 130. In the cities of Bombay and Madras and in Assam, the rise under most of the classes is comparatively low and, as in the case of the quinquennium 1905—12, the rise in prices in these three circles has been the lowest for the period 1908—12.

Average Index numbers of wholesale prices of Foodgrains—Cereals and Pulses—and Oilseeds in the different Circles.

CIRCLES.	FOODGRAINS—CEREALS.			FOODGRAINS—PULSES.			OILSEEDS, OILS, etc.		
	1895 to 1899.	1900 to 1904.	1905 to 1912.	1895 to 1899.	1900 to 1904.	1905 to 1912.	1895 to 1899.	1900 to 1904.	1905 to 1912.
Calcutta . . .	110	108	131	113	112	138	104	109	139
Bombay . . .	108	113	125	112	122	134	103	107	133
Karachi . . .	115	116	137	119	122	129	110	115	146
Madras . . .	97	106	128	110	111	133	103	109	134
Assam . . .	116	108	129	109	107	125	100	114	140
Bengal Northern and Eastern	108	106	140	109	115	145	105	113	141
„ Southern and Western	108	108	137	113	118	146	102	108	135
Chota-Nagpur . .	113	111	135	122	118	142	117	109	133
Behar . . .	117	109	142	116	110	144	104	105	127
Agra Provinces East .	111	103	132	126	117	142	103	108	146
Bundelkhand . .	121	115	142	134	119	150	102	115	145
Agra Provinces North and West (including Oudh)	115	106	137	137	120	156	101	107	143
Punjab East . .	119	112	139	128	126	142	104	107	145
„ West . .	114	112	132	121	119	131	109	108	140
Sind . . .	112	108	139	129	127	140	108	109	132
Gujarat . . .	112	116	138	121	143	139	103	106	133
Deccan . . .	119	123	139	117	127	135	108	119	148
Berar . . .	121	133	140	126	140	140	103	110	140
Central Provinces .	123	118	138	124	122	140	106	115	150
Madras North-East .	110	110	144	114	111	135	105	102	130
„ North . .	107	114	144	108	109	127	106	104	131
„ South . .	98	106	139	103	105	130	112	112	139
„ West . .	105	111	136	107	106	126	102	107	142
INDIA	112	111	137	118	118	139	106	110	139

Lowest rise of prices is in Assam.

112. The lowest increase in the general price-level of all circles except the ports has occurred in Assam which is practically immune from famine. Prices, of course, rose in the famines of 1897 and 1908, but they have always shown a tendency to return to their old level as soon as the acuteness of the distress in the areas affected had disappeared. Thus, in 1897, the prices of cereals and pulses rose to a level 37 and 33 per cent. higher than that of the basic period, but by the middle of 1899 they went down almost to the old level. The famine of 1900 raised the levels again to some extent, but by 1904 they were considerably below the old level. Since then, as in other circles, there was a steady increase, and in 1908 the prices were 55 and 48 per cent. higher than in the basic period. After the famine, however, prices fell and notwithstanding an increase, in sympathy with the general rise all over India in 1912, the prices of cereals and pulses, in that year were only 24 and 19 per cent. higher than in the basic period. The area under oilseeds in Assam is comparatively of little importance and the fluctuations in their prices have generally harmonised with the fluctuations in the prices prevailing in Bengal from which the supplies are usually obtained. The average of the last quinquennium is about 43 per cent. higher than that of the basic period. The prices of building materials have shown a steady increase as in most parts of India. In other articles of food and other raw materials, also, there has been an increase but of a comparatively small extent. It should also be noted that the actual average prices of food stuffs in Assam during the basic period was generally higher than the corresponding prices in the circle nearest to it. namely, Bengal Northern and Eastern, as the following figures clearly show. If, therefore, in subsequent years there were an equal increase in the prices of these food stuffs in Assam as compared with Bengal Northern and Eastern, the proportionate rise in the price ratios in the former would be much smaller than that in the price ratios of the latter. Moreover the opening of the Assam Bengal Railway has facilitated transport and the reduction in transportation charges has acted against a rise in prices.

Comparative statement of actual average prices of food stuffs in Assam and Bengal Northern and Eastern Circles during the basic period 1890-94.

Articles.	Average actual price per maund.						Proportion of first to second.
	Assam.			Bengal Northern and Eastern.			
	R	A.	P.	R	A.	P.	
Paddy	1	10	11	1	8	7	112
Rice	2	15	6	2	13	5	105
Gram	3	4	11	2	5	6	143
Mung	3	13	11	3	7	1	112
Dal, Khesari	3	4	5	2	8	1	131
Dal, Musur	4	0	10	3	12	2	108
Sugar	12	3	2	9	8	7	128
Gur	5	5	8	4	5	7	123
Betelnut	8	0	7	7	6	2	109
Chillies	10	9	7	7	7	1	142
Ghi	35	14	3	33	5	4	108
Mustard	3	11	1	3	9	5	103
Oil, cocoanut	14	15	1	13	9	8	110
,, mustard	14	2	0	12	6	0	114

113. The rise in the price levels at the ports also has been comparatively small, since they were generally higher during the basic period ; the increase during famine years was also comparatively small because owing to their favourable position the ports always get the advantage of the cheapest markets.

SUMMARY.

The extent of the rise.

114. To sum up: There has been a general rise in prices throughout India which has been especially marked during the last eight years, *i.e.*, since 1905. Taking quinquennial periods, the index numbers for all India showed an increase in rupee prices of 8 per cent. in the quinquennium 1895-99, 12 per cent. in the quinquennium 1900-04, 31 per cent. in the quinquennium 1905-09, 32 per cent. in 1910, 34 per cent. in 1911 and 41 per cent. in 1912 in comparison with the basic period 1890-94, or expressed in gold prices, a rise of 5 per cent. in 1895-99, 16 per cent. in 1900-04, 35 per cent. in 1905-09, 37 per cent. in 1910, 39 per cent. in 1911 and 47 per cent. in 1912.

Groups of commodities in which the rise has been specially marked.

115. The rise has been especially marked in the case of hides and skins, foodgrains—pulses and cereals, building materials, and oilseeds, all of which have risen 40 per cent. or more above the level of the basic period. Cotton and jute have risen about 33 and 31 per cent., respectively, while other articles of food, metals, and other raw and manufactured articles have risen about 25 per cent. In country sugar, and especially in *gur*, there has been a moderate increase, but, on the other hand, there has been an appreciable decrease in the prices of tea and coffee, imported sugar, dyeing and tanning materials especially indigo, coal, and shellac, as also a slight fall in the prices of other textiles.

Localities in which prices have risen most.

116. The extent of the increase in prices in the different areas has not been the same. The rise has been greatest in areas which have suffered from famine more frequently and severely than in those where famine has been less frequent and less acute, *e.g.*, in Bundelkhand, Berar, Sind, Agra Provinces North and West, Punjab East, Punjab West, Deccan and Madras South. On the other hand, the rise has been comparatively small in Assam which is practically free from famine. The rise at the ports except Karachi has been less than in most of the upland circles; but in comparing the ports with the other circles it should be borne in mind that at the ports prices had been generally higher than in the upland circles in the earlier years and an equal rise in prices would result in a lower percentage of rise at the ports; moreover owing to their advantageous position, the ports obtain their supplies from the cheapest markets and consequently the prices there do not fluctuate within such wide limits as those in upland circles. The rise in the different circles has been approximately as follows during the last quinquennium.

Class I.—Increase ranging from 40 per cent. and over:—

Karachi	49
Bundelkhand	45
Berar	44
Sind	43
Madras South	43
Agra Provinces North and West	42
Punjab East	42
Deccan	42
Punjab West	40

Class II.—Increase ranging from 35 to 39 per cent.:—

Behar	39
Central Provinces	39
Madras North and East	39
Madras North	39
Bengal Northern and Eastern	38
Bengal Southern and Western	38
Chota Nagpur	37
Gujarat	36
Agra Provinces East	36

Class III.—Increase below 35 per cent.:—

Madras West	34
Calcutta	30
Bombay	29
Assam	27
Madras	26
Average of all India	38

117. The disparity between the price-levels in good and bad years is striking. With the linking up, however, of markets by railways, the variations between circle and circle, and district and district, are very much less than formerly and are greatest in places most remote from the ports and in areas which are more or less liable to famine. Whenever, therefore, there has been a famine in any part of India, the price-level of all circles have risen more or less, the rise being, of course, greatest in the areas actually affected by famine.

CHAPTER V.

Causes of the Rise of Prices.

Variations in price-level—periodical and secular.

118. It has been shown in the last chapter that there have been two classes of variations in the general price-level in India, one periodical or occasional and the other secular or progressive, that the oscillations of the former have been frequently very violent, and that, on the whole, there has been a progressive rise in the general price-level during the period under enquiry, the rise having been greatest since the year 1905.

Rise in prices general throughout the world.

119. Recent investigations made in many other countries, *viz.*, Great Britain, Germany, France, Belgium, Italy, Canada, the United States, New Zealand and Australia, show that the rise has been almost, if not quite, general throughout the world. Consular reports and German and French newspapers teem with complaints of the effects of high prices. A writer in Hamburg has recently said that Germany has long ceased to be an inexpensive country. The American Consul at Havre says that "the cost of living in France has considerably increased in the past ten years and is the subject of constant comment and continual complaint on the part of those whose salaries remain unchanged. Moreover, there is every indication that the augmentation will continue, and that ten years hence we shall be paying still more for the necessaries of life than to-day." Town populations of Austria, more especially of Vienna, have been agitating for some time past for a reduction in the food tariff. The Spanish Government has yielded to the extent of passing a bill for gradual abolition of octroi in the hope that it will reduce the cost of living in towns. In the United States, the social upheaval caused by high prices is perhaps responsible for the onslaught on the Trusts and on the entire protective system. In Japan the recent high prices have been engaging the anxious attention of the Government of the country, and in 1911 the Government, under pressure, lowered the tariff temporarily. A writer at Odessa (Russia) says that 'during the past ten years there has been a gradual increase in the cost of almost all articles that enter into living requirements . . . . . . Nor would it seem that this increase has been affected by the results of the various crops from year to year.

Comparison of price-level of India with that of other countries.

120. It is, therefore, necessary, when investigating into the causes of the rise in India, that the rise of the price-level in other countries should be fully appreciated. The following table compares the rise of the general price level in gold in India with that in other countries :—

Index Numbers of Wholesale Prices in India and Foreign Countries. 1890—1912.
(Average of 1890—94=100.)

Years.	United Kingdom.				Belgium (Waxweiler).	Germany (Schmitz and Hooker).	Italy (Imports and Exports).	France (various).	Canada (Department of Labor).	United States of America (Bureau of Labor).	New Zealand (McIlwraith).	Australia (Melbourne wholesale prices).	India.
	Economist.	Board of Trade.	Sauerbeck.	Average.									
1890 . . .	105	102	105	104	101	106	107	104	106	106	103	117	113
1891 . . .	103	106	105	105	103	106	101	104	104	105	104	104	106
1892 . . .	98	100	99	99	102	100	100	98	99	100	101	102	100
1893 . . .	99	99	99	99	95	97	99	101	98	99	97	94	96
1894 . . .	95	93	92	93	99	91	93	93	93	90	95	83	85
1895 . . .	90	90	90	90	98	88	93	88	95	88	90	84	89
1896 . . .	92	87	89	89	97	87	91	85	89	85	93	102	99
1897 . . .	90	89	90	90	100	90	90	87	88	84	94	102	120
1898 . . .	89	92	93	91	101	95	93	91	92	88	94	99	109
1899 . . .	92	91	99	94	102	99	101	99	96	95	95	89	108
1900 . . .	102	99	109	103	109	106	112	106	104	104	98	99	126
1901 . . .	96	95	102	98	110	102	103	100	103	102	95	108	120
1902 . . .	92	95	101	96	112	99	99	98	105	106	97	116	115
1903 . . .	96	95	101	97	113	105	101	100	106	107	97	116	111
1904 . . .	101	97	102	100	114	106	104	99	107	106	92	98	110
1905 . . .	100	96	105	100	114	109	103	100	109	109	95	101	120
1906 . . .	110	99	112	107	121	118	109	110	115	115	98	105	134
1907 . . .	119	104	117	113	122	127	114	116	121	122	104	113	138
1908 . . .	105	101	106	104	127	115	110	105	116	115	101	123	147
1909 . . .	104	102	108	105	124	119	111	107	116	119	98	110	138
1910 . . .	111	107	114	110	123	123	116	112	120	124	100	111	137
1911 . . .	117	108	117	114	127	134	120	120	122	121	104	111	139
1912 . . .	124	..	123	..	..	..	..	..	129	128	..	130	147

121. These figures show that in India from 1890 to 1894 the general level of prices measured in gold declined steadily with the prices in other countries of the world, in spite of the unfavourable agricultural conditions which prevailed in some parts of India in 1891. In 1896-97 the widespread famine in India caused a considerable rise in the general price-level here. In Australia also, there was a drought, and it was followed by a rise there larger than in India; but in the other parts of the world, prices continued in their downward course. With the appearance of normal conditions in India and Australia, prices fell in both countries, but in the other countries, the tide was turned, and for the first time, after a long period of continued depression, prices began to take an upward course. In 1900, acute famine prevailed again over a considerable part of India and, as a result, there was a large increase in prices. There was a simultaneous rise throughout the world, and the general price-level in that year stood above the average of the basic period in practically every part of the world, the only exception being New Zealand and Australia, where the rise was not sufficiently large to raise the level above that of the early nineties. In the next four years prices continued to decline in India, until in 1904 the general level was only 10 per cent. above that of the basic period. In Australia, there was a severe drought in 1901-02, and as a result, prices rose until 1903, after which there was a heavy decline in 1904. In Belgium, prices have risen steadily since 1897, while in New Zealand they have oscillated up and down throughout the period within comparatively narrow limits. In other countries, there was a decline in 1901, and in some of them in 1902 also, but in 1903, prices began to rise again. In 1905, prices in India and Australia also took an upward course and since then the general price-level continued to rise in all parts of the world until 1907. In that year there was a drought again in India and Australia, and prices rose very high in these two countries in 1908; but in all other parts of the world there was a more or less heavy fall. On the disappearance of the effect of the drought, prices declined in India and Australia in 1909, and this lower level was maintained till 1911, but in the other parts of the world prices continued in their upward course. In 1912, there has again been a sharp rise not only in India and Australia, but also in most other countries of the world.

Necessity of comparing averages of index numbers for a series of years.

122. The somewhat violent fluctuations shown by the index numbers of individual years, due undoubtedly to causes, more or less temporary and local, vitiate comparison between particular years. A consideration of the average level of the index numbers over periods of several years would indicate more clearly the net result of the figures contained in the foregoing table. The averages of the index numbers during each quinquennial period have been computed for all the countries and are exhibited in the table on the next page. In these quinquennial averages, temporary oscillations, and, with them, the effect of more or less temporary causes, have been largely eliminated, and the results indicated by them give a clearer idea of the general trend of prices in different parts of the world. These quinquennial averages indicate that there has been a steady and continuous increase in the price-level since 1894—98 and that the rise has been greatest in India and smallest in New Zealand, while the rise in England has been smaller than that in other countries except New Zealand.

Quinquennial averages of Index Numbers of Wholesale Prices in India and Foreign Countries.

Quinquennium.	UNITED KINGDOM.				Belgium (Waxweiler).	Germany (Schmitz and Hooker).	Italy (Imports and Exports).	France (various).	Canada (Department of Labour).	United States of America (Bureau of Labor).	New Zealand (McIlwraith).	Australia (Melbourne wholesale prices).	India.
	Economist.	Board of Trade.	Sauerbeck.	Average.									
1890—94 . .	100	100	100	100	100	100	100	100	100	100	100	100	100
1891—95 . .	97	98	97	97	100	96	97	97	98	96	97	95	95
1892—96 . .	95	94	94	94	98	93	95	93	95	92	95	93	94
1893—97 . .	93	92	92	92	98	91	93	91	93	89	94	93	98
1894—98 . .	91	90	91	90	99	90	92	89	91	87	93	94	100
1895—99 . .	91	90	92	91	100	92	94	90	92	88	93	95	105
1896—00 . .	93	92	96	94	102	95	97	94	94	91	95	98	112
1897—01 . .	94	93	99	95	104	98	100	97	97	95	95	99	117
1898—02 . .	94	94	100	96	107	100	102	99	100	99	96	102	116
1890—03 . .	96	95	102	98	109	102	103	101	103	103	96	106	116
1900—04 . .	97	96	103	99	112	104	104	101	105	105	96	107	116
1901—05 . .	97	96	102	98	113	104	102	95	106	106	95	108	115
1902—06 . .	100	96	104	100	115	107	103	101	108	109	96	107	118
1903—07 . .	105	98	107	103	117	113	106	105	112	112	97	107	123
1904—08 . .	107	99	108	105	120	115	108	106	114	113	98	108	130
1905—09 . .	108	100	110	106	122	118	109	108	115	116	99	110	135
1906—10 . .	110	103	111	108	123	120	112	110	118	119	100	112	139
1907—11 . .	111	104	112	109	125	124	114	112	119	120	101	113	140
1908—12 . .	112	..	113	..	..	..	..	..	121	121	..	117	142

123. The latest quinquennium for which index numbers have been collected for all countries is 1907—11. If the average index numbers of this quinquennium be compared with the averages of the basic period, the rises in the different countries may be arranged as follows, in descending order. As explained above, the lowest level of prices in all the countries with the exception of India was reached in the quinquennium 1894—98. Comparing the averages of the latest quinquennium (1907—11) with those of this quinquennium also, the increases in the different countries are as shown below:—

	Compared with 1890—94.	Compared with 1894—98.
India	40	40
Belgium	25	26
Germany	24	38
United States of America	20	38
Canada	19	31
Italy	14	24
Australia	13	20
France	12	26
United Kingdom	9	21
New Zealand	1	9

Limitations of comparison between index numbers of different countries.

124. In using the index numbers of various countries, as indicating the rise in their general price-level, it should be noted that, even though the index numbers have been reduced to a common standard period, percentage comparisons are somewhat misleading. Percentages may be the same when the actual changes in price are different, or the actual change may be the same when the percentage change varies. It is well-known that when the price of any commodity sold in Calcutta and London changes, it tends to change in both, not by a percentage of price but by a definite amount. If the commodity is exported from Calcutta to London, its rise or fall will be larger as a percentage in Calcutta than in London, because the change in price will be calculated on a price less than the English price by the cost of transport. The agricultural products and raw materials, which form the bulk of the commodities, on the price of which the Indian index numbers have been calculated,

are always exported to most of the other countries mentioned above and their prices are generally smaller in India. An equal increase in the actual prices in England and India would, therefore, mean a really larger percentage of increase in India than in England.

125. But even if sufficient allowance be made for this consideration, there is no doubt that the rise in the price-level of the different countries would be different. Apart from the general factors which have influenced the price-levels of all countries, there must, therefore, have been local influences at work in the different countries. Of all the countries mentioned, the rise has been greatest in India, and there has been a considerable rise in America and Germany also, since the quinquennium 1894—98. The rise in the latter countries might be accounted for by the heavy protective tariffs introduced into them and by the influence of industrial and commercial combinations which have, of late, grown very rapidly in the United States. These factors have been practically non-existent in India, and some other special influences must, therefore, have been at work here to have raised the price-level to a height considerably above that to which it could have been raised by the influences that have caused a general rise throughout the world.

Causes of the rise of prices divided into (1) causes peculiar to India and (2) world-factors.

126. The causes of the rise of prices in India should, therefore, be divided into two classes, *viz.*, (1) causes peculiar to India and (2) causes not confined to India alone. There are other causes which must have influenced prices in other countries, but not in India to any considerable extent. It is extremely difficult to keep apart the first two classes of causes, inasmuch as, factors peculiar to India and factors operating in other countries as well as in India interact on one another. Isolation of phenomena is, it is well-known, the greatest difficulty in dealing with price changes. Moreover, India has during the last fourteen years changed from a silver to a gold standard of value, which is a movement similar to that of "bringing the railway gauge on the side branches of the world's railways into unison with the main lines, and promoting a facility of exchange."

Possible causes peculiar to India—enumerated.

127. The principal causes peculiar to India which might have affected the general price-level, may be classified under the following broad heads :—

(1) A shortage in the supply of agricultural products and raw materials;
(2) An increase in the demand for these commodities;
(3) An increase in the cost of production;
(4) The development of railways and other communications in India and the lowering of the direct and indirect costs of transport in India itself and between Indian ports and foreign countries;
(5) An improvement in the general monetary and banking facilities and an increase in credit;
(6) An increase in the volume of the circulating medium.

128. Many other causes are alleged, some of which might have contributed to the rise in prices, but they would fall under one or other of the heads mentioned above and should be treated as contributory causes. Thus the rise in the standard of living, the changes in the growth and movement of the population and increase in the exports of agricultural produce and raw materials affect the demand for commodities, while a deficiency and unseasonableness of the rainfall, a decrease in the fertility of the land and the substitution of commercial crops, such as jute in the place of rice and cotton in the place of wheat, could raise prices only if their effect was a shortage of supply. The import of additional capital into India might cause an increased demand for labour and raw material and might also affect causes (5) and (6). All these will be discussed when dealing with the several heads mentioned above.

Causes affecting the whole commercial world—or world-factors—enumerated.

129. The principal causes affecting the whole commercial world may be divided into :—

(1) A shortage in the supply of, or an increase in the demand for, staple commodities in the world's markets.
(2) The increased gold supply from the world's mines.
(3) The development of credit.
(4) Destructive wars and increase of the standing army and navy in most of the prosperous countries, diverting capital and labour to unproductive purposes and causing an increased demand for many classes of commodities.

130. Here also there might be other causes, but they would come under one or other of the heads mentioned above. Thus, the immigration of enormous masses of manual labourers from Europe into the countries ot North and South America, which means a large transfer of working population from food production in Europe, on a low standard of food consumption, to industrial employment in other countries, upon a far higher standard of food consumption, would create an increased demand for commodities. The sinking of a large and growing proportion of labour and capital, in new and backward countries of the world, means the application of a vast amount of productive energy to a kind of work, the fruitfulness of which takes a long period of time to mature. If out of the hundreds of millions of fresh capital made available by the rapid growth of credit, considerable amounts, which might have gone to promote agriculture and manufacture, have gone, year after year, into laying the deep foundations for a future career of agriculture and manufacture in backward lands, the result must be a restriction of immediate productivity, as compared with the growth of capital, having no inconsiderable influence in raising prices.

131. Then, there is a great and growing waste involved in the struggle to market the goods that are produced. In every country publishing reliable censuses of occupations, we perceive a rapid increase in the proportion of persons engaged in trying to sell goods. Nor can we ignore the innumerable signs of an expenditure upon luxurious goods and services absorbing an increasing share of the general income in the richest countries. Another contemporary movement is the influence of industrial and commercial combinations upon the volume of production. The rapid rise of Trusts, Cartels, Conferences, Pools and other forms of trade combination or agreement clearly belong to the epoch of rising prices and must be considered contributory to it. The normal result of the formation of combines is to restrict the rate of production, making it lower than it would have been under an era of free competition. Protective duties and cold-storage plants, which result in preventing extreme fluctuations of prices of certain commodities with the seasons, but tend to advance prices by enabling wholesale dealers to sell at the best possible advantage, do not, however, play any important part in the causes of the rise of prices in India, as they do in the United States and some other countries.

CHAPTER VI.

Causes of the rise of Prices peculiar to India.

SHORTAGE IN THE SUPPLY.

Causes of shortage in the supply.

132. One of the principal causes which have led to the rise in prices in India, is a shortage of supply, particularly in the case of foodgrains. By shortage of supply is meant—not that the total production of the country has actually contracted as compared with the basic period, but that production has not kept pace with the growth of internal consumption and external demand. This shortage of supply may have resulted from one or more of the following factors :—

(1) Growth of cultivation not keeping pace with the growth of population ;
(2) Unseasonable rainfall ;
(3) Substitution of non-food crops for food crops ;
(4) Inferiority of new lands taken up for cultivation ;
(5) Inefficient tillage on account of dearness and scarcity of plough cattle and labour ; and
(6) Decreased productive power of the soil.

GROWTH OF CULTIVATION NOT COMMENSURATE WITH GROWTH OF POPULATION.

133. The following table shows the total acreage under cultivation, in the different circles and their index numbers :—

Area under Cultivation.

—	TOTAL AREA UNDER CULTIVATION (IN THOUSANDS OF ACRES).						INDEX NUMBERS (AVERAGE OF 1890-91—1894-95 = 100).					
	Average of 1890-91 to 1894-95.	Average of 1895-96 to 1899-00.	Average of 1900-01 to 1904-05.	Average of 1905-06 to 1909-10.	1910-11	1911-12	Average of 1890-91 to 1894-95.	Average of 1895-96 to 1899-00.	Average of 1900-01 to 1904-05.	Average of 1905-06 to 1909-10.	1910-11	1911-12
Assam	2,084	3,526	5,118	5,345	5,733	5,839	100	169	246	256	275	280
Bengal Northern and Eastern.	16,261	16,516	16,185	16,330	16,087	16,366	100	102	100	100	99	101
„ Southern and Western.	17,226	17,142	17,413	17,629	17,410	17,226	100	100	101	102	101	100
Chota Nagpur	6,832	7,816	5,955	6,033	6,825	7,556	100	114	87	88	100	111
Behar	22,527	22,261	21,398	20,729	21,635	21,481	100	99	95	92	96	95
Agra Provinces East	9,209	8,774	9,375	9,240	9,703	9,617	100	95	102	100	105	104
Bundelkhand	3,051	2,571	2,992	2,793	3,322	3,281	100	84	98	92	109	108
Agra Provinces North and West.	30,052	28,705	30,930	30,201	1.512	31,187	100	96	103	100	105	104
Punjab East	21,109	19,460	22,774	23,992	24,189	22,197	100	92	108	114	115	105
„ West	6,661	6,211	6,743	7,017	7,122	6,730	100	93	101	105	107	101
Sind	3,301	3,305	3,790	4,346	4,515	3,263	100	100	115	132	137	99
Gujarat	3,683	2,962	2,906	3,358	3,474	2,318	100	80	79	91	94	63
Konkan	1,270	1,211	1,234	1,512	1,717	1,226	100	95	98	110	135	97
Deccan	20,516	18,528	19,280	19,827	20,909	18,520	100	90	94	97	102	90
Berar	6,741	6,367	7,170	7,377	7,217	7,070	100	94	106	109	107	105
Central Provinces	16,926	16,199	17,872	19,238	20,720	21,259	100	96	106	114	122	126
Madras North-East	5,402	5,584	6,668	9,574	11,872	11,847	100	103	123	177	220	219
„ North	7,031	7,220	7,768	7,813	7,752	7,341	100	103	110	111	110	104
„ South	12,143	12,406	13,228	15,102	16,231	15,856	100	102	109	124	134	131
„ West	1,863	2,035	2,095	2,388	2,489	2,477	100	109	112	128	134	133
TOTAL INDIA EXCLUDING BURMA.	**213,888**	**208,808**	**220,894**	**229,844**	**240,434**	**232,657**	**100**	**98**	**103**	**107**	**112**	**109**
TOTAL INDIA, AS ESTIMATED							**100**	**98**	**103**	**105**	**108**	**108**

Discrepancies in acreage returns.

134. Statistics of the acreage under cultivation are more or less defective in most of the provinces, as explained below. The figures shown in the above table should, therefore, be taken with many limitations and the net result indicated by them corrected accordingly. It is not possible to prepare from independent sources new estimates of the actual extension of cultivation with any pretence to accuracy; I have, however, applied rough corrections to the existing figures and deduced from them the extent of the growth of cultivation in each circle. Although these estimates are rough, they are probably sufficiently correct for purposes of comparison. Details of these estimates are given below.

Extension of cultivation—estimates of.

135. In Assam, the index numbers indicate an extension of cultivation by 180 per cent. This high percentage is due to the fact that, in the basic period, large areas which had been under cultivation for a long time past were not included in the returns. Comparing the figures for years for which complete statistics are available, the extension is not likely to have exceeded 15 per cent. The figures for the two circles in Bengal proper do not show any extension, but the data collected for the recent survey and settlement operations and for the record of rights show that the figures for the earlier years were more inaccurate guesses than the present ones. If allowance be made for this, there would appear to have been an extension of about 5 per cent. in these two circles. The case of Chota Nagpur is peculiar; for some of the districts included in this circle, the estimates of area were reduced or raised arbitrarily on more than one occasion; the figures of some surveyed tracts show, however, an extension of cultivation of 15 per cent. since 1890 and this has been taken as the estimate for the entire circle. The figures for Behar show an actual contraction in the area, but this is contrary to the views of all who can speak with any authority on this part of the country. The low index numbers are the result of unduly high estimates of the area in the earlier years. The area was practically fully cultivated long ago and the extension has been put down at 5 per cent. The figures for the United Provinces of Agra and Oudh are more reliable than those of Assam, Bengal, and Behar and the index numbers do not show any appreciable extension of the area under cultivation in Agra Provinces East and Bundelkhand Agra Provinces North and West (including Oudh), however, shows a small extension of about 4 per cent. The extension of area in Punjab East has been due to irrigation and may be set down at 15 per cent., that in Punjab West being much smaller, *viz.*, 6 per cent. In Sind, however, irrigation has brought comparatively large areas under cultivation and the growth in that circle has been as large as 30 per cent. In Gujarat, the figures in the several periods cannot bear comparison with one another, as in the basic period they included certain unsurveyed tracts which were excluded in later years, and again in later years some new areas were brought into the returns for the first time. On the whole, Gujarat has always been a highly cultivated tract and there has not been much room for extension. In Konkan, the high index numbers for the later years are due to the inclusion of new areas in the returns and it is estimated that no appreciable growth could have taken place in that circle. Deccan is the only circle which shows any contraction in the area under cultivation, although very slight. In Berar, the extension has been about 9 per cent. and in the Central Provinces about 20 per cent. In the Madras Presidency, Zemindary areas which were not returned before, were gradually brought into the returns from 1901-02 and large areas were included for the first time from 1907-08. This explains the very high index numbers for the later years in the circles comprising that Presidency. From an examination of the later years' figures and assuming that the rate of extension was about the same in the earlier as in the later period, the extension of area in Madras North-East is likely to have been between 10 to 12 per cent., that in

Madras North and Madras South, 5 per cent. and in Madras West, between 7 to 8 per cent.

136. There is, therefore, no doubt that the actual extension of cultivation in the later years has been much smaller than what is indicated in the table. The statement shows that the index number of the total cultivated area in British India, excluding Burma, fell to 98, *i.e.*, by 2 per cent. in the quinquennium 1895-96 to 1899-00 (which includes two famine years), while it rose to 103 in the next quinquennium and to 107 in the next. In 1910-11, it rose to 112, but again fell to 109 in 1911-12. According to the corrected estimates, however, the extension of the area under cultivation in British India excluding Burma for the several periods in each of the several quinquennia has been as shown below :—

—	1890-91 to 1894-95.	1895-96 to 1899-00.	1900-01 to 1904-05.	1905-06 to 1909-10.	1910-11.	1911-12.	Average of 1910-11 and 1911-12.
Total area	100	98	103	105	108	106	107
Area under foodgrains .	100	96	101	102	106	103	105

Production of crops.

137. The next two statements and chart No. 41 show the estimated outturn of foodgrains and other crops in British India (excluding Burma) for different periods. In estimating the outturn of the different crops, allowance has been made for the defects in the figures of area under cultivation referred to above. Index numbers have also been calculated and are given in the next table.

[00,000 omitted:

Crops.		1890-91 to 1894-95.	1895-96 to 1899-00.	1900-01 to 1904-05.	1905-06 to 1909-10.	1910-11.	1911-12.
Rice	Mds.	74,21	75,06	75,99	72,30	82,36	79,51
Wheat	,,	20,40	18,11	21,56	20,32	23,61	25,00
Barley	,,	8,32	8,85	9,21	9,50	10,31	11,14
Jowar	,,	17,81	17,82	19,20	17,44	18,78	14,19
Bajra	,,	6,87	6,36	8,26	8,09	9,10	6,16
Ragi	,,	4,26	4,42	4,90	4,62	4,80	4,29
Maize	,,	5,63	6,44	7,47	6,82	7,37	5,71
Gram	,,	10,71	8,07	9,53	8,71	11,84	12,13
Other foodgrains	,,	38,51	38,17	39,68	37,18	43,62	45,94
TOTAL FOODGRAINS .	,,	1,86,72	1,83,29	1,95,80	1,84,97	2,11,79	2,04,07
Linseed	,,	94	79	96	69	1,11	1,40
Oil	,,	85	92	1,13	1,01	1,10	92
Other oilseeds (including rape and mustard)	,,	2,86	2,67	2,95	3,14	3,91	3,70
TOTAL OILSEEDS	,,	4,66	4,38	5,03	4,83	6,12	6,02
Sugarcane	,,	7,90	7,53	7,12	6,49	6,82	7,39
Cotton	,,	87	87	1,21	1,38	1,42	1,22
Jute	,,	2,73	2,94	3,65	4,20	3,62	4,23
Tea	lbs.	12,31	15,48	19,52	23,03	24,74	25,38
Tobacco	Mds.	92	1,01	99	92	1,05	99

Index numbers.

Crops.	1890-91 to 1894-95.	1895-96 to 1899-00.	1900-01 to 1904-05.	1905-06 to 1909-10.	1910-11.	1911-12.
Rice	100	101	102	97	111	107
Wheat	100	89	106	100	116	123
Barley	100	106	111	114	124	134
Jowar	100	100	108	98	105	80
Bajra	100	92	120	118	133	90
Ragi	100	104	115	108	113	101
Maize	100	115	133	121	131	101
Gram	100	75	89	81	111	113
Other foodgrains	100	99	103	97	113	119
TOTAL FOODGRAINS .	100	98	105	99	113	109
Linseed	100	84	102	73	119	149
Til	100	109	133	119	129	108
Other oilseeds (including rape and mustard)	100	93	103	110	137	129
TOTAL OILSEEDS .	100	94	108	104	131	129
Sugarcane	100	95	90	82	86	93
Cotton	100	100	139	159	164	141
Jute	100	108	132	154	133	155
Tea	100	126	159	187	201	206
Tobacco	100	110	108	101	114	108

138. The figures in these tables show that, of the foodgrains, the production of Barley, Bajra and Maize has increased steadily, if allowance be made for some set-back in unfavourable years. The production of Wheat and Ragi has also increased though not so largely. There has not been much increase under Rice and Jowar, while the production of Gram has, on the whole, gone down considerably.

139. Of the oilseeds, the production of Sesamum has increased most, while that of Linseed has decreased to some extent. Taken as a whole, the production or oilseeds has fairly increased. The production of Sugarcane has decreased very considerably, while that of Cotton, Jute and Tea has grown very largely. Under Tobacco, there has been a slight increase in the production.

Production of food-grains.

140. Expressed in percentages of the average outturn of the quinquennium 1890-91 to 1894-95, the outturns of foodgrains in the several periods were :—

	1890-91 to 1894-95.	1895-96 to 1899-00.	1900-01 to 1904-05.	1905-06 to 1909-10.	1910-11.	1911-12.
Average outturn (in millions of maunds.)	1,867	1,833	1,958	1,850	2,118	2,041
Percentages	100	98	105	99	113	109

Increase in internal consumption due to growth of population.

141. The growth in the internal consumption has been mainly due to the increase in population in the last two decades. The following statement shows the population of the several circles according to the Censuses of 1891, 1901 and 1911.

Circles.	Total Population.			INCREASE (+) DECREASE (—) SINCE 1891.			
				Number.		Percentage.	
	1891.	1901.	1911.	1901.	1911.	1901.	1911.
Assam	5,477	5,842	6,714	+ 365	+1,237	+ 6·2	+18·4
Bengal Northern and Eastern	18,084	19,750	21,912	+1,666	+3,828	+ 8·4	+17·4
„ Southern and Western	24,151	25,640	26,797	+1,489	+ 2,646	+ 5·8	+ 9·8
Chota Nagpur	4,629	4,900	5,605	+ 271	+ 976	+ 5·4	+17·5
Behar	23,802	23,606	24,019	— 196	+ 217	— ·8	+ ·9
Agra Provinces East	11,877	11,402	11,334	— 475	— 543	— 4·1	— 4·8
Bundelkhand	2,300	2,106	2,208	— 194	— 92	— 9·2	— 4·1
Agra Provinces North and West including Oudh.	32,728	34,184	33,640	+1,456	+ 912	+ 4·2	+ 2·7
Punjab East	16,298	17,543	16,957	+1,245	+ 659	+ 7·0	+ 3·9
„ West	4,964	4,874	5,215	— 90	+ 251	— 1·8	+ 4·8
Sind	2,875	3,102	3,362	+ 227	+ 487	+ 7·3	+14·5
Gujarat	3,098	2,702	2,803	— 396	— 295	—14·6	—10·5
Konkan	2,967	3,039	3,111	+ 72	+ 144	+ 2·3	+ 4·6
Deccan	9,072	8,787	9,220	— 285	+ 148	— 3·2	+ 1·6
Berar	2,897	2,754	3,057	— 143	+ 160	— 5·2	+ 5·2
Central Provinces	10,784	9,877	11,603	— 907	+ 819	— 9·2	+ 7·0
Madras North-East	10,098	10,897	12,087	+ 799	+1,989	+ 7·3	+16·4
„ North	3,699	3,899	5,000	+ 200	+1,301	+ 5·1	+26·0
„ South	17,573	18,856	19,464	+ 1,283	+1,891	+ 6·8	+ 9·0
„ West	3,808	4,037	4,334	+ 229	+ 526	+ 5·6	+12·1
Calcutta	682	848	896	+ 166	+ 214	+19·5	+23·9
Bombay	822	776	980	— 46	+ 158	— 5·9	+16·1
Madras	452	509	518	+ 57	+ 66	+11·2	+12·7
Karachi	105	109	152	+ 4	+ 47	+ 3·7	+30·9
TOTAL	213,242	220,039	230,988	+6,797	+17,746	+ 3·1	+ 7·6

Growth of Population

142. The growth of population has varied widely in the different parts of India. In some circles, there has been an actual decrease during the twenty years 1891 to 1911 namely, in Agra Provinces East, Bundelkhand and Gujarat. In some circles, the growth has been only nominal, namely, in Behar, Deccan, Agra Provinces North and West, Punjab East, Konkan, Berar and the Central Provinces, while in some others, there has been an appreciable increase, namely, in Assam, Bengal Northern and Eastern, Chota Nagpur, Sind, Madras North-East and Madras North. As mentioned elsewhere, the most important factors affecting the growth of population during the two decades have been famine and its attendant furies, cholera, dysentery and fever; plague, which commenced in the city of Bombay in September 1896 and has since then appeared yearly in many parts of the country in a more or less virulent form and has in some years claimed a million of people as its victims; and finally malaria, which also has taken a heavy toll in some of the circles, notably those included in the United Provinces and the Punjab, where in some years it has been terribly prevalent, especially in the irrigated tracts in the eastern and central districts. The following statement shows the annual deaths from plague in the different provinces since its first appearance.

Number of Deaths from Plague in the different Provinces of India from 1896 to 1912.

Year.	Bengal.	United Provinces.	Punjab.	North-West Frontier Province.	Central Provinces and Berar.	Eastern Bengal and Assam.	Madras.	Bombay.	Total.	Progressive Total.
1896	..	..	..	..	..	..	..	2,219	2,219	2,219
1897	..	72	179	..	11	..	2	47,710	47,974	50,193
1898	219	148	2,019	..	131	..	557	86,191	89,265	139,458
1899	3,264	7	255	..	586	..	1,658	96,596	102,366	241,824
1900	38,412	135	572	..	592	..	664	33,196	73,571	315,395
1901	78,629	9,778	16,720	..	9	..	3,035	128,259	236,430	551,825
1902	32,967	43,487	175,645	4	4,647	..	11,362	184,752	452,861	1,004,689
1903	65,680	80,729	192,068	49	51,514	28(a)	12,006	281,269	684,343	1,689,032
1904	75,456	179,082	396,357	1	42,806	..	20,125	223,957	937,784	2,626,816
1905	126,084	383,802	334,897	3	12,706	6	5,788	71,363	934,649	3,561,465
1906	59,619	69,660	91,712	41	18,121	74	808	57,525	291,650	3,853,115
1907	83,602	328,862	608,685	1,547	37,774	8	2,872	93,609	1,156,959	5,010,074
1908	15,948	22,878	30,708	563	6,236	..	3,358	27,345	107,036	5,117,110
1909	11,779	38,394	35,655	1	19,216	1	3,844	24,319	133,209	5,250,319
1910	46,584	158,074	135,483	30	28,961	46	4,867	25,043	399,088	5,649,407
1911	75,681	332,301	175,345	243	27,938	27	15,185	100,399	727,119	6,376,526
1912	1,837	105,784	29,174	2	18,712	..	4,620	18,811	178,940	6,555,466

(a) Only in Assam.

143. It is interesting to note that there are two large currents of migration from Bengal including Bihar and Chota Nagpur, one to the tea-gardens of Assam and the other to Calcutta and other industrial centres. It is this migration which has caused a large increase in the population of the sea-port towns, though owing to plague there was a large decrease in the population of Bombay in the first decade. But it has been more than made good in the following decade.

144. If we estimate the population of the years, other than those in which the censuses were taken, by the method of interpolation, after making allowances for the large mortality from plague, the average population of the several quinquennia were as follows :—

Period.	Average population in millions.	Index number.
1891—95	214	100
1896—00	217	101·6
1901—05	222	103·7
1906—10	226	105·7
1911	231	107·8
1912	232	108·4

Growth of population compared with growth of cultivation and of production of foodgrains.

145. The following table compares the growth of population with that of production of foodgrains and the extension of cultivation :—

	Average of the quinquennium 1890-91 to 1894-95.	Average of the quinquennium 1895-96 to 1899-00.	Average of the quinquennium 1900-01 to 1904-05.	Average of the quinquennium 1905-06 to 1909-10.	1910-11.	1911-12.
Population	100	101·6	103·7	105·7	107·8	108·4
Total area under cultivation.	100	98	103	105	108	106
Area under food grains	100	96	101	102	106	103
Production of foodgrains.	100	98	105	99	113	109

146. It may safely be concluded from the above, that population has increased by a larger percentage in the period under enquiry than either the total area under cultivation, the area under foodgrains or the total production of foodgrains, or, in other words, the requirements of foodgrains for internal consumption have increased in a larger proportion than the total production of foodgrains. It should, however, be mentioned that the total consumption of foodgrains includes not only the consumption as human food, but also consumption as seed grain and cattle food. Whenever there is a scarcity, consumption, as cattle-food, goes down considerably, as owing to high prices people cannot afford to feed their cattle with grain. Further, in good years, a stock of foodgrains is generally laid by, by the agriculturists, which is utilised in times of scarcity and famine. The export of foodgrains also goes down in unfavourable years and import rises, and thus, although the actual percentage growth of the production may, in any period, be smaller than the growth of population, it should not necessarily be assumed that the total available food supply in the country was actually very short of the requirements of human consumption.

147. If, however, we take the production of Burma into account, the disparity between the figures showing the growth of population and growth of production would be found to be smaller, as the increased production in Burma has counterbalanced to a large extent the shortage in India proper.

148. The production of the several foodgrains in Burma were as follows :—

[In lakhs of maunds.

Crops.	1890-91 to 1894-95.	1895-96 to 1899-00.	1900-01 to 1904-05.	1905-06 to 1909-10.	1910-11.	1911-12.	Average of 1910-11 and 1911-12.
Rice	7,47	8,34	11,10	11,90	11,26	11,21	11,23
Wheat	1	1	2	2	2	1	2
Jowar	21	20	34	33	12	12	12
Gram	4	4	6	6	5	4	4
Other foodgrains	17	17	26	42	74	45	60
TOTAL FOODGRAINS	7,90	8,76	11,78	12,73	12,19	11,85	12,01

Index numbers.

—	1890-91 to 1894-95.	1895-96 to 1899-00.	1900-01 to 1904-05.	1905-06 to 1909-10.	1910-11.	1911-12.	Average of 1910-11 and 1911-12.
Rice	100	111	149	159	151	150	151
Wheat	100	62	135	173	146	105	126
Jowar	100	96	159	154	55	58	57
Gram	100	94	139	145	119	88	104
Other foodgrains	100	96	153	241	438	260	349
TOTAL FOODGRAINS	100	111	149	160	154	150	152

149. And adding this quantity of foodgrains produced in Burma to the production of India, the total supply of foodgrains would compare with the growth of population as follows :—

—	Average of the quinquennium 1890-91 to 1894-95.	Average of the quinquennium 1895-96 to 1899-00.	Average of the quinquennium 1900-01 to 1904-05.	Average of the quinquennium 1905-06 to 1909-10.	1910-11 to 1911-12.
Population	100	101·8	104·5	106·3	109·2
Production of food-grains.	100	99	107	103	113

150. The external demands for Indian foodgrains have also increased considerably, as will be evident from the figures in the Trade Statistics. The exports of foodgrains from India (excluding Burma) to other countries in the several periods were :— **Increase in external demand—exports.**

—	Average of quinquennium 1890-91 to 1894-95.	Average of quinquennium 1895-96 to 1899-00.	Average of quinquennium 1900-01 to 1904-05.	Average of quinquennium 1905-06 to 1909-10.	1910-11.	1911-12.
In thousands of cwts.	28,899	21,956	33,255	29,568	41,857	64,240
Index numbers	100	76	115	102	145	222

151. The fall in exports in the second quinquennium was due to the bad seasons of 1896-97, 1897-98 and 1899-00. The percentage for the third quinquennium would have been higher but for the very low exports in 1900-01 owing to the famine of 1900, and that for the fourth quinquennium was reduced by the famine of 1908. If the exports of 1908-09 be excluded, the average for the quinquennium would have been 33,737 thousands of cwts., and the index number 117. The high figure of the year 1911-12 is due to the good season of the previous year in most parts of the country, but even if this special element of favourable season be allowed for, the growth of the export trade in foodgrains would be found to have been much higher than that in the basic period.

Deficiency met by imports.

152. To meet this deficiency in her food-supply, India has been importing foodgrains chiefly from Burma, and to some extent from other countries also. The imports of foodgrains in the several years were :—

	Thousands of cwts.		Thousands of cwts.
1890-91 . . .	2,286	1901-02 . . .	16,379
1891-92 . . .	1,762	1902-03 . . .	9,533
1892-93 . . .	3,016	1903-04 . . .	4,370
1893-94 . . .	7,705	1904-05 . . .	6,795
1894-95 . . .	6,084	1905-06 . . .	10,557
1895-96 . . .	3,201	1906-07 . . .	17,308
1896-97 . . .	7,974	1907-08 . . .	20,561
1897-98 . . .	13,545	1908-09 . . .	25,458
1898-99 . . .	7,390	1909-10 . . .	22,033
1899-00 . . .	16,101	1910-11 . . .	12,016
1900-01 . . .	25,304	1911-12 . . .	5,505

153. The average imports of the several quinquennia and their index numbers were :—

—	Average of 1890-91 to 1894-95.	Average of 1895-96 to 1899-00.	Average of 1900-01 to 1904-05.	Average of 1905-06 to 1909-10.	1910-11.	1911-12.
Imports, thousands of cwts.	4,171	9,643	12,476	19,183	12,016	5,505
Index numbers .	100	231	299	460	288	132

154. The imports were heaviest in the quinquennia 1900-01 to 1904-05 and 1905-06 to 1909-10; and although the quinquennium 1895-96 to 1899-00 includes two famine years, the imports were much lower. Even in the most favourable of recent years, the imports never fell below the average of the first quinquennium.

155. The available supply of foodgrains in the country, during each of the periods shown above, may be calculated as follows, after taking into account the total production of the country and the imports from and exports to foreign countries :—

Net Available Supply of Foodgrains in India.

IN MILLIONS OF CWTS.

—	1890-91 to 1894-95.	1895-96 to 1899-00.	1900-01 to 1904-05.	1905-06 to 1909-10.	1910-11.	1911-12.
Total production . . .	1,372	1,347	1,439	1,359	1,556	1,49
Total imports from foreign countries	4	10	12	19	12	6
TOTAL .	1,376	1,357	1,451	1,378	1,568	1,55
Exports to foreign countries . .	29	22	33	30	42	6
Net available supply	1,347	1,335	1,418	1,348	1,526	1,44
Index numbers	100	99	105	100	113	10

156. Considering the growth of the population and the increase in the external demand, the supply has been short during the greater part of the period embraced in the enquiry. The demand for both internal consumption and exports having increased at a quicker rate than the production of foodgrains, it is only natural that the general level of prices of foodgrains over a series of years would rise, although in a particularly favourable year it might have fallen to some extent. The food-supply in India, compared with the demand, both internal and external, reached its lowest level in the quinquennium 1905—09, and this shortage of supply has doubtless contributed, in no small measure, to the unusual rise in prices during that quinquennium.

Production of crops other than food-grains.

157. As regards the other agricultural products of India, the summary tables at pages 55 and 56 show the production of the several crops in the several periods with their index numbers.

158. The production of Oilseeds fell to an abnormally low level in the quinquennium 1895-96 to 1899-00 and then gradually rose in the succeeding quinquennium, the outturns of 1910-11 and 1911-12 being about the same as in the preceding quinquennia. The production of Sugar gradually declined in the successive quinquennia and, though it, to some extent, recovered in 1911-12 the ground lost, it is still much lower than in the basic period. The production of Cotton has steadily increased, owing to the stimulus of large profits, there being a slight decline in 1911-12; Jute also has for the same reason gone on steadily increasing, until in 1907-08 the production exceeded the demand considerably and a decline followed. Since then, the ground lost is being gradually recovered again. The variations in the production of Tobacco has been inconsiderable, while there has been a steady and continuous increase in the production of Tea.

159. The decreased production of Sugar in India has led to a rise in the price of Country Sugar (including *Gur*), while the price of imported Sugar has declined. Over-production of Tea has caused a downward slide in prices of that commodity; but the price of Cotton has gone up in spite of the increased production owing to a larger demand for Indian cotton in other countries. High prices had led to increased cultivation of Jute and, owing to increased demand, prices continued on their upward course until 1908, when the effect of over-production was felt and prices fell; prices have again been rising since.

UNSEASONABLE RAINFALL.

Seasonable rainfall.

160. India is pre-eminently an agricultural country, and has to depend almost entirely on its rainfall, for its prosperity or otherwise. If the rainfall is good and fairly distributed, there is a bumper crop all round, while a deficiency brings in its train scarcity and famine. It will be seen from the production and rainfall figures that short production and unseasonable rainfall go hand in hand, and that too great an importance cannot be attached to seasonable rainfall in this country.

161. A statement has been prepared by Dr. G. T. Walker, C.S.I., F.R.S., Director-General of Observatories (reproduced on pages 452-453 of Vol. III, Statistics), which shows the frequency of droughts in India as compared with other countries. The general conclusion from the statistics is, that of all countries which are dependent on agriculture, none has a rainfall so precarious as India.

162. Charts Nos. 42 to 49 show the annual rainfall in India and the annual and seasonal rainfalls of the several circles. The seasons vary widely in the different circles and it has not been possible to combine the seasonal rainfalls of all the circles into one for all India.

163. Deficiencies not less than 30 per cent. and excesses not less than 50 per cent. of the normal rainfall in each season in the several circles during the period under enquiry are detailed in Appendix F. Both shortage and excess of rainfall

have an equally injurious effect on the crops depending on it: but even a shortage or excess is not very harmful if the rainfall is fairly distributed, while a normal rainfall, if unevenly distributed, is sure to be prejudicial. Thus, all the excesses or deficiencies shown in the table might not have necessarily caused an injury to the crops, while in some of the other periods not shown in the table, the rainfall, though neither short nor excessive in the aggregate, might still have caused extensive damages owing to bad distribution.

164. The abnormal conditions of the rainfall of the several provinces during the period under enquiry and their effect on the crops are summarised in a separate memorandum appended as Appendix F. Besides shortage and abnormal distribution of rainfall, crops suffer from other causes also, such as floods, hailstorm, frost, rust, cloudy weather and intense cold, while wild animals, field-rats, locusts and other insect pests also cause serious damage. Examples of such injuries are given in the memorandum referred to above. India is not a small country but a continent, and it is a matter not to be wondered at that in almost every year there have been failures of crops of varying degrees, either widespread or confined to particular tracts. The years 1892-93 and 1903-04 were the only really good years during the period under enquiry when the crops were excellent throughout the country.

Summary of the agricultural seasons.

165. The main features of the agricultural seasons during the period under investigation may be summarised as follows: The period opened with favourable seasons and good harvests throughout India except in the Madras Presidency, where the year 1891-92 was somewhat adverse and there was almost a famine in that province. Abundant harvests of rice, wheat and oilseeds were gathered in 1892-93, and in the two following years also the harvests were generally good, notwithstanding untimely and, in some circles, excessive rain. In 1895, there was a change and a period of insufficient rainfall and crop-failure ensued, culminating in the great famine of 1897, a famine not confined to any particular areas but affecting almost every part of India. The year 1898 was a year of rest and, in Northern India, of rapid recovery; but it was succeeded by a more complete failure than before of the rainfall, in some parts, and in 1899 and 1900, there was again a total failure of the crops over large areas, especially in Central and Western India, and a famine ensued, the severity of which was still fresh in the memory of the ryots whom we examined in the Central Provinces, Berar, the Bombay Presidency and the Punjab. The disastrous famine was followed by three years of subnormal production, especially in Northern and Central India. The year 1903-04 was the first all-round good year after the famine and the crop was a bumper one. In 1904-05, however, the Rabi crops in Bihar and Bundelkhand were poor, while the Kharif was deficient in the central and south-western districts of the Punjab. In the Bombay and Madras Presidencies also, the crops suffered from unseasonable and deficient rainfall. In 1905-06 also, there was a partial failure of the monsoon in Northern and Western India and heavy rains and floods marked the year in Bengal. The crops were specially bad in the Bombay Presidency, where famine was declared. In 1906, the spring crops were below normal and the autumn crops were damaged, more or less, by excessive rains and floods, particularly in Bengal, and there was famine in North Bihar. This was followed by the failure of the South-West Monsoon in 1907-08, when the United Provinces of Agra and Oudh, the Central Provinces and parts of the Bombay and Madras Presidencies were plunged into severe distress. The years 1909-10 and 1910-11 were years of good harvest and 1911-12 was also good, except in parts of the Punjab and the Bombay Presidency.

Extent of famine during the period under investigation.

166. The effect and extent of the unfavourable seasons during the period 1890—1912 may be seen from the following table :—

Area and Population affected by Famines and Cost of Relief during the years 1890—1912.

Years.	Provinces.	Area affected.	Population affected.	Cost in lakhs of rupees.
		Sq. m.		
1888-89	Bihar and Madras .	3,500	1,000,000	25
1891-92	Madras . . .	50,000	7,000,000	1,06
1896-97	Bengal, Madras, Central Provinces, United Provinces of Agra and Oudh, Bombay and Punjab.	225,000	62,000,000	17,07
1899-00	Central Provinces, Berar, Bombay, Punjab, Ajmer.	189,000	28,000,000	16,51
1905-06	Bombay . .	23,411	3,334,000	16
1906-07	North Bihar . .	2,855	13,000,000	18
1907-08	United Provinces of Agra and Oudh, Central Provinces, Bengal, Bombay and Madras.	130,180	49,628,553	9,18

Extension of irrigation.

167. The extensive construction of irrigation works in the last two decades, especially in districts with a precarious rainfall, has succeeded in mitigating the adverse effects of drought in many tracts, where considerable areas would have otherwise remained uncultivated in years of deficient rainfall. The following tables show the area irrigated in each of the quinquennia from these sources as well as from wells, and the percentages of the area irrigated to the total area cultivated for all circles except those in the provinces of Assam, Bengal and Bihar and Orissa, for which complete figures are not available.

Percentages of Irrigated Areas to Total Area Cultivated.

—	Average of quinquennium 1890-91 to 1894-95.	Average of quinquennium 1895-96 to 1899-00.	Average of quinquennium 1900-01 to 1904-05.	Average of quinquennium 1905-06 to 1909-10.	1910-11.	1911-12.
Agra Provinces East .	36·7	38·8	37·1	38·1	33·6	29·4
Bundelkhand . .	3·6	5·4	4·3	7·4	5·6	5·4
Agra Provinces North and West.	25·3	30·2	27·8	31·1	23·9	22·6
Punjab East . .	26·6	37·9	36·7	38·7	37·4	46·2
„ West . .	22·6	24·2	23·5	24·3	25·7	27·3
Sind	87·1	82·2	85·8	82·8	79·2	98·1
Gujarat . . .	3·2	4·7	3·4	3·9	4·0	7·7
Konkan . . .	3·1	3·2	3·0	2·8	2·7	2·8
Deccan . . .	3·3	4·0	3·3	3·2	3·5	4·0
Berar . . .	·6	1·0	·6	·7	·5	·5
Central Provinces .	4·4	3·9	3·2	4·2	3·5	3·0
Madras North-East .	32·8	34·2	37·6	44·8	43·7	43·3
„ North . .	9·1	8·6	7·8	7·7	8·1	7·0
„ South . .	33·3	32·9	33·8	33·3	34·0	33·8
„ West . .	2·7	2·5	1·0	·2	·2	·2
India*	19·1	23·3	21·7	23·5	22·0	23·1

* Does not include figures for Assam, Bengal and Bihar and Orissa.

168. *It has been explained in the foot notes to the Agricultural Statistics* (Vol. III—Statistics) that in some parts of India, extensive areas which had been under cultivation for a long time, were included in the statistics for the first time in the later years. The index numbers of the area figures would not, therefore, give an accurate idea of the beneficial results of artificial irrigation. The percentage figures are, however, more reliable in this respect than the index numbers, and have, therefore, been quoted in the above table instead of index numbers. An examination of these percentages shows that generally in the periods in which there was deficient rainfall, areas, larger than in the other periods, were irrigated to make good the deficiency of moisture in the soil. They also show, that, apart from this, there has been a progressive growth in irrigation in India, particularly in Agra Provinces East, Punjab East, Punjab West, Sind, Madras North-East and Madras South.

SUBSTITUTION OF NON-FOOD FOR FOOD-CROPS.

Food-crops displaced by non-food crops.

169. It has been asserted by some that a gradual extension of the cultivation of commercial crops, such as jute, cotton and oilseeds, has led to a contraction of the area under foodgrains and of their outturn, resulting in a rise in the prices of the latter. The high prices of jute and cotton have no doubt induced cultivators in the jute and cotton-growing areas to cultivate these crops in preference to foodgrains and the statistics below and Chart No. 39 also bear out the truth of this statement:—

Percentages of the area under crops to the total gross cultivated area in British India (excluding Burma).

—	Quinquennium 1890-91 to 1894-95.	Quinquennium 1895-96 to 1899-00.	Quinquennium 1900-01 to 1904-05.	Quinquennium 1905-06 to 1909-10.	1910-11.	1911-12.
Foodgrains	81·3	81·0	80·2	79·3	79·7	78·2
Oilseeds	6·0	5·5	5·7	5·4	5·6	6·5
Jute	1·0	1·0	1·1	1·4	1·2	1·4
Cotton	4·6	4·4	5·1	5·7	5·9	6·0

Figures do not show such displacement fully.

170. As already mentioned, large new areas have been included in the returns for the later years, particularly in the Madras Presidency, which grows no jute and but very little cotton. Had the figures for the earlier years been complete, the percentages of jute and cotton in the first three quinquennia would have been smaller than those shown in the above table.

171. It should also be borne in mind that every part of India does not grow cotton and jute, and consequently the total area under these two crops forms only a small percentage of the total area cultivated, and the increase in their percentages for all India must necessarily be small, although in the actual cotton and jute-growing areas, it might have been appreciable. It is, therefore, necessary in this connection to examine the figures for individual circles.

Examination of the percentages of the important crops in different circles.

172. From the subjoined statement and Chart No. 40 it will be seen that the cultivation of jute has been developed at the expense of other crops in Bengal Northern and Eastern, Bengal Southern and Western and Bihar, that of cotton in Punjab East, Sind, Gujarat, Deccan, Berar, Central Provinces and Madras South, and that of oilseeds in Central Provinces and Madras South. In all cases, however, these crops have not been substituted for foodgrains alone; thus in Bengal Southern and Western, jute has only displaced oilseeds,

sugarcane and indigo, while in Bihar, only indigo has given place to jute. But in Bengal Northern and Eastern, jute has been substituted for food-crops; in Sind and Berar, cotton has grown at the expense of food-crops and oilseeds, and in the other circles mentioned above, cotton and oilseeds have displaced food-crops. It will be seen that this substitution commenced in the quinquennium 1900-01—1904-05, but was specially marked in the next quinquennium and has continued since.

—	PERCENTAGE TO THE TOTAL GROSS AREA CULTIVATED.					
	Quinquennium 1890-91 to 1894-95.	Quinquennium 1895-96 to 1899-00.	Quinquennium 1900-01 to 1904-05.	Quinquennium 1905-06 to 1909-10.	1910-11.	1911-12.
BENGAL NORTHERN AND EASTERN.						
Foodgrains	71·48	70·1	68·54	65·64	67·9	67·7
Jute	11·28	10·7	12·22	14·9	13·2	14·1
BENGAL SOUTHERN AND WESTERN.						
Foodgrains	85·34	84·88	85·04	84·4	86·1	85·4
Oilseeds	4·5	4·24	4·22	3·2	3·1	3·2
Sugarcane	1·46	1·08	·96	·8	·7	·6
Indigo	1·02	·82	·12	..	..	..
Jute	1·42	1·14	1·28	2·76	2·2	2·5
BIHAR.						
Foodgrains	84·64	83·54	82·96	83·78	84·1	84·4
Indigo	1·72	1·64	1·16	·68	·5	·5
Jute	·46	·4	·72	1·22	1·1	1·2
PUNJAB EAST.						
Foodgrains	84·58	77·76	76·26	75·0	75·6	72·3
Cotton	3·28	5·14	5·26	4·44	4·4	5·0
SIND.						
Foodgrains	81·56	83·04	83·32	83·14	83·9	79·5
Oilseeds	12·34	10·48	9·88	8·32	7·5	7·4
Cotton	3·06	3·18	4·44	5·78	6·1	10·3
GUJARAT.						
Foodgrains	74·94	76·96	72·22	68·68	67·0	66·8
Cotton	18·1	16·64	19·46	23·74	26·0	26·9
DECCAN.						
Foodgrains	80·02	80·1	78·8	76·9	74·7	73·0
Cotton	10·42	10·34	12·46	14·86	16·7	18·0
BERAR.						
Foodgrains	56·7	57·4	54·84	52·76	51·1	48·4
Oilseeds	8·82	6·26	5·08	3·18	3·2	4·2
Cotton	33·06	34·88	38·46	42·56	44·2	46·1
CENTRAL PROVINCES.						
Foodgrains	80·56	82·12	79·8	79·2	79·6	76·1
Cotton	4·24	4·14	6·58	6·9	6·3	6·6
Oilseeds	11·64	10·32	10·66	10·74	11·2	14·4
Other crops	3·56	3·42	2·96	3·16	2·9	2·9
MADRAS SOUTH.						
Foodgrains	82·78	83·32	81·74	79·86	79·6	76·8
Oilseeds	6·71	6·06	7·84	8·48	8·2	10·6
Cotton	4·8	4·34	4·34	5·54	6·2	7·0

173. The available statistics of cultivation are doubtless defective, and cannot be absolutely relied upon, but, as explained above, there cannot be any doubt

that the cultivation of non-food crops has grown steadily and that the area under foodgrains has actually contracted in some circles, while in some others its growth has been retarded, and the net result has been a diminution of the food supply of the country and a consequent rise in prices. In Bengal Northern and Eastern, Gujarat, Deccan and Berar, the actual area under foodgrains has probably been curtailed, while in the other circles mentioned above the growth of the area cultivated with them has only been retarded.

Commercial crops have ousted food-grains from best lands.

174. Another effect of this increased cultivation of the commercial crops on the food supply of the country has been that the best lands available are applied towards their cultivation, while the cultivation of foodgrains is relegated, to some extent, to inferior lands, the yield of which even in normal years is much less.

Total new area under commercial crops comparatively very small.

175. It should be remembered that the total area which these commercial crops have occupied at the expense of foodgrains is very small compared with the total area under cultivation of the latter, and consequently the effect of this substitution could not have been very great, though it is a factor which cannot altogether be ignored. It is true the total exports of foodgrains from India amount to a very small percentage of the total production, but even a small increase in this percentage, owing to increased demands from other countries, is sure to send up prices, and, in the same way, a contraction in the supply or a retardation of its growth, however small, will have the same effect.

INFERIORITY OF NEW LANDS TAKEN UP FOR CULTIVATION.

Best lands already under cultivation.

176. Signs are not wanting that cultivation has expanded, more or less, in every part of India; but taking India as a whole, the expansion has not been very large, as has already been explained. Nature always follows the line of least resistance and it is only natural that in every country, when it first came to be inhabited, lands that were most fertile and most easily accessible, should be taken up for cultivation first. India is not an exception to the rule, and at the commencement of the period under enquiry most of the better class lands had already been under the plough. With an increase in the pressure of population on the soil and increased demands for agricultural products from other countries, new lands had to be broken up; in some parts, *e.g.*, the Chenab River Colony, virgin fertile lands were made suitable for cultivation by the construction of new canals, but in the more populous tracts which constitute by far the bulk of the total area, all lands that were good had already been taken up, and whatever new lands were brought under cultivation were necessarily of an inferior quality. The produce of this inferior land cannot be so good as that of the richer soils, and consequently the addition of these poorer lands has diminished, to some extent, the average yield per acre for India as a whole.

Decrease in the average yield due to the displacement of foodgrains from best lands by commercial crops.

177. As explained above, non-food crops, such as jute and cotton, have in some areas displaced food-crops or ousted them from the richer soils, and this also has affected the average yield of foodgrains per acre. But considering the very small percentage of the extension of cultivation and the very small area, compared to the total, by which the cultivation of cotton and jute has grown, the reduction in the average yield per acre cannot but be inappreciably small. The conditions of the seasons vary so widely in different years, even in the same district, let alone the whole continent of India, that it is impossible to find any two years in two different periods in which the climatic and agricultural conditions were the same. It is, therefore, impossible to obtain statistics which would show by how much the average yield per acre has been reduced on this account—but there can be no doubt that, whatever it may be, it is quite insignificant.

INEFFICIENT TILLAGE.

Tillage inefficient through scarcity

178. Most of the Indian witnesses, whom we examined, appeared to be under the belief that there has been a decrease in the supply of agricultural products, owing

and dearness of labour and cattle.

Scarcity of labour.

to inefficient tillage of the land. It was said that land is not now cultivated as carefully and efficiently as before, owing to scarcity and dearness of plough-cattle and labour. In order to effect a saving in the cost of cultivation, cultivators do not also plough their lands as often as they used to do before, and manuring and weeding, as also the amount of irrigating where wells are used for the purpose, have all been reduced. There is no doubt that with the development of different kinds of industries, the opening of new railways, mills and factories, the construction of canals, roads and buildings on a much larger scale, the demand for labour has increased considerably. The supply, on the other hand, has not grown in the same proportion; in some parts, the Punjab and the United Provinces of Agra and Oudh for example, plague has appreciably reduced the number of labourers, and in some other parts, immigration has played an important part in restricting the labour supply. While at Chupra, I saw special trains conveying thousands of labourers every day from that locality to Northern and Eastern Bengal. Throughout the country, the demand for labour has taken a new turn and instead of labourers seeking for employment, it is the employers who now seek for labourers.

Scarcity of cattle.

179. As regards the scarcity of plough-cattle, the statement below shows the number of bulls, bullocks and buffalo-bulls at stated periods for the several circles, except Bengal Northern and Eastern, Bengal Southern and Western, Chota Nagpur and Bihar, for which such statistics are not available. These figures bear testimony to the deplorable effects of famine, the inevitable result of which has always been to reduce the number of cattle, though the deficiency is generally made good in a few years if otherwise favourable. The number of plough-cattle in the latest year included in the statement was lower than in the commencement, in some of the circles, namely, Assam, Bundelkhand, Agra Provinces—North and West, Gujarat, Deccan, Berar, Madras North, and Madras West. Although great reliance cannot be placed on these statistics, they can be accepted as showing that in some areas at any rate there has been a dearth of plough-cattle.

Number of Bulls, Bullocks and Buffalo-bulls.

[In thousands.

	Number.	Index No.		Number.	Index No.
			PUNJAB EAST.		
AGRA PROVINCES EAST.			1893-94	3,821	100
			1898-99	4,125	108
1893-94	2,551	100	1903-04	3,987	104
1898-99	2,310	91	1908-09	4,069	106
1903-04	2,607	102			
1908-09	2,642	104	PUNJAB WEST.		
			1893-94	1,044	100
			1898-99	1,157	111
BUNDELKHAND.			1903-04	1,064	102
			1908-09	1,157	111
1893-94	590	100			
1898-99	533	90	SIND.		
1903-04	622	105	1899-00 . . .	534	100
1908-09	567	96	1901-02	555	104
			1905-06	572	107
			1909-10	605	113
AGRA PROVINCES NORTH AND WEST.					
			GUJARAT.		
1893-94	7,918	100	1893-94	538	100
1898-99	7,890	100	1897-98	508	94
1903-04	8,640	109	1901-02	398	74
1908-09	7,648	97	1905-06	412	76
			1909-10	441	82

[In thousands.

	Number.	Index No.		Number.	Index No.
KONKAN.			MADRAS NORTH-EAST.		
1893-94	474	100	1890-91	915	100
1897-98	467	99	1894-95	1,004	109
1901-02	463	98	1899-00	986	108
1905-06	483	102	1904-05	1,014	110
1909-10	518	109	1909-10	2,389	261*
DECCAN.			MADRAS NORTH.		
1893-94	2,449	100	1890-91	877	100
1897-98	2,123	87	1894-95	904	103
1901-02	1,737	71	1899-00	854	97
1905-06	1,796	73	1904-05	836	95
1909-10	1,975	80	1909-10	859	98
BERAR.			MADRAS SOUTH.		
1893-94	771	100	1890-91	2,590	100
1896-97	815	106	1894-95	2,731	105
1899-00 . . .	738	96	1899-00	2,679	103
1902-03	674	87	1904-05	3,080	119
1905-06	691	89	1909-10	3,470	134*
1908-09	741	96			
CENTRAL PROVINCES.			MADRAS WEST.		
1896-97	3,128	100	1890-91	779	100
1899-00 . . .	3,186	102	1894-95	792	102
1902-03	3,205	103	1899-00	782	100
1905-06	3,410	109	1904-05	792	102
1908-09	3,621	116	1909-10	742	95

* Increase due to inclusion of new areas in the returns.

180. It is, therefore, possible that in these areas at any rate the cultivation of land has become less efficient than before, but it is very doubtful whether this has had any appreciable effect on the total outturn of the land.

Decrease in manuring.

181. There might also have been a decrease in the extent of manuring in localities in which, owing to the restrictions imposed on the removal of wood from forests, the use of cow-dung as fuel has increased, and it is not available to the same extent as before for purposes of manuring.

182. As has been explained below, careful experiments made from time to time do not show that apart from the effect of unfavourable seasons, there has been any change in the productive power of the soil, and that even if there has been any inefficiency in the cultivation of land, it has not affected the total outturn to any remarkable extent.

DECREASE IN THE PRODUCTIVE POWER OF THE SOIL.

Deterioration of the soil.

183. One of the causes of the rise of prices was, many witnesses thought, a decrease in the supply of agricultural produce due to a decrease in the productive power of the soil, but no one was able to furnish any statistical data to prove this. In fact, there is no statistical evidence to show that any change has taken place in the fertility of agricultural land in any part of India, either during the period under enquiry or even during a much longer period. The theory of deterioration is no new one and there is no doubt that it has been frequently grossly exaggerated. Colonel Sleeman in his 'Rambles and Recollections,' Vol. II, page 152, records an interesting conversation which he had in the spring of 1836 with a Rajput of the Meerut district on the subject:

"It cannot be disputed that the *burkut* (blessing from above) is less under you than it used to be formerly, and that the lands yield less to our labour."

" True, my old friend, but do you know the reason why ? "

" No."

" Then I will tell you. Forty or fifty years ago, in what you call the times of *burkut* (blessing from above), the cavalry of Seikh freebooters from the Punjab, used to sweep over this fine plain, in which stands the said village from which you are all descended ; and to massacre the whole population of some villages, and a certain portion of that of every other village ; and the lands of those killed used to lie waste for want of cultivators. Is not this all true ? "

" Yes, quite true."

184. The tract referred to is now one of the richest in the United Provinces, its wheat has a special reputation among Indian wheats in the English markets, and its railway stations have frequently required enlargement to meet its growing trade. Notwithstanding a much more exhaustive system of cropping than was practised in Colonel Sleeman's time, the increasing volume of exports from that part gives no indication that productiveness of the soil is *ceteris paribus* decreasing. It is sometimes held that a proof of the deterioration of the soil is the fact that the outturns given in the *Ain-i-Akbari* are higher than those given in the Agricultural Statistics of the Government of India. Statistics of the outturn of crops given in the *Ain-i-Akbari* are, at best, mere approximations to the truth and their reliability is problematical. Land is there divided into *Polaj* land, *Parauti* land, *Chachar* land and *Banjar* land ; and then it is said :

" Of the first two kinds of land, there are three classes, good, middling. and bad. They add together the produce of each sort and a third of this represents the medium produce, one-third part of which is exacted as the royal dues. The revenue levied by Sher Khan, which at the present day is represented in all provinces as the lowest rate assessment, generally obtained and for the convenience of the cultivators and the soldiery the value was taken in ready money."

185. The following are the outturns of rice and wheat of *Polaj* land. The figures in the *Ain-i-Akbari* are given in Akbari maunds per bigha and the Akbari maund was one-half the modern standard maund and the Akbari bigha was ·538 of an acre. The following figures may, therefore, be taken to represent the outturn in standard maunds per acre :—

	Produce of a bigha of the best sort of *Polaj*.	Produce of a bigha of the middling sort.	Produce of a bigha of the worst sort.	Aggregate produce of three bighas of different sorts.	One-third of the preceding, being the medium produce of a bigha of *Polaj*.	One third of the medium produce, being the proportion fixed for the revenue.
	Md. Sr.	Md. Sr.	Md. Sr.	Md. Sr.	Md. Sr.	Md. Sr.
Wheat	18 0	12 0	8 35	38 35	12 38	4 12½
Rice (common) . . .	17 0	12 20	9 15	38 35	12 38½	4 13.

186. The tracts referred to in the *Ain-i-Akbari* are mainly those of the United Provinces, and the outturns for these provinces now are :—

	Md. Sr.
Wheat	12 31
Rice	10 13

187. The difficulties of comparing the two sets of outturns are very great, in view of the fact that we do not know how the averages given in the *Ain-i-Akbari* were obtained, *i.e.*, for what areas and from how many years' figures they were calculated. The averages seem to be merely the averages of good, bad and middling lands, and these averages of the three classes of lands may not necessarily represent the average outturn, specially because no attempt was made to find out under which of the three classes of lands (good, bad and middling) the area was

the greatest. There is no doubt that with the increase in the acreage of cultivation, especially of less fertile soils, the average outturn would decrease, but to establish a deterioration it must be shown that the land, which was under cultivation in former times, now yields less than it did before.

> " In the case of wheat, especially," says Mr. S. Srinivasa Raghavaiyangar, C.I.E., " irrigation makes a great difference, the yield of irrigated wheat being from 50 to 300 per cent. in excess of the outturn of unirrigated wheat. The dominions of the Emperor Akbar did not extend to the south of the Vindhia Mountains, and the Ain-i-Akbari rates cannot therefore be applied to Southern India. If the rate for rice, 1,338 lbs., given in these tables refer to unhusked rice, the Madras settlement average (1,621 lbs.) is considerably higher. Cotton is frequently sown as a mixed crop, and it is difficult to calculate its average outturn. There is nothing, however, to show that its outturn has diminished. In a recent report on the cultivation of cotton in the Tinnevelly District submitted to the Madras Agricultural Department by an Agricultural Inspector, it is stated, 'cotton soils of the best quality sell for Rs. 1,000 a sanghili (3·64 acres), ordinary soils for Rs. 500, while inferior soils sell below Rs. 200. In fertile soils and under good treatment, 1,000 lbs. seed cotton per acre is no unusual outturn ; an ordinary good yield of cotton may be taken to vary from 750 lbs. to 900 lbs. of seed cotton, while 500 lbs. may be taken as a fair average yield taking all soils into consideration. These figures have been arrived at from the statements of different classes of ryots and include the first and second courses of pickings.' "

Polaj land, it must be noted, was the best cultivable land and, owing to the heavy revenue collected from it and the sparseness of the population, it must have been difficult at that time to get the land brought under cultivation ; so that *Polaj* land must have formed a considerable part of the total area under cultivation. Under British rule, however, the area under cultivation has enormously increased, so that inferior land has been brought under cultivation owing to agricultural prosperity. This would lower the average of productivity, but it certainly does not prove that a deterioration in the soil has taken place. It is, in short, impossible to compare the outturns of the *Ain-i-Akbari* with the yields published in the Appendix to the Agricultural Statistics of the Government of India.

Professor Wallace's views.

188. Mr. R. Wallace, Professor of Agricultural and Rural Economy in the University of Edinburgh, says : " One old and very important question with regard to India still continues to be asked : 'Is the fertility of the soil being exhausted by the native practices that have been going on for thousands of years ?' My unqualified answer is 'No.' " He quotes from the report of the Settlement Officer of Bilaspur (Mr. Chisholm), who says : " When fresh soil is broken up for rice cultivation, the ground can never be got into proper order during the first year, and the yield is less than in the old fields. In the second year the outturn rises about one-eighth above that of the old fields and increases gradually year by year until the fifth, when it reaches 50 per cent. above the old fields. It then commences to decline, and in about another five years has subsided to the level of the old fields, and at that level it remains unchanged for ever. Many fields, for instance, are believed to have been continuously cultivated for 150 years and more, and yet they are in no way inferior to land reclaimed from the jungle but 15 years ago."

Dr. Voelcker's views.

189. Dr. Voelcker in his Report on the Improvement of Indian Agriculture states: "The possibility of soil exhaustion going on (in India) can only be determined by a careful study of what is removed from the land, and how far this is replaced by the forces of nature and by the artificial nourishment of manuring. I have mentioned the deficiency of nitrogen which I observed in the case of several Indian soils, but it is worthy of note too, how very large a proportion of the crops annually grown, also of the trees and shrubs and even of the weeds, are leguminous in character, and may thus, if recent investigations be correct, possibly derive their nitrogen from the atmosphere."

Views of a Settlement Officer of Basti.

190. A Settlement Officer of Basti wrote that "fallows are unusual except in the poorest lands. The people cannot afford to let their fields lie fallow, and the soil, annually replenished by the copious rain, does not seem to require a rest. A theory was formerly held that in the Basti and Gorakhpur districts periods of high cultivation alternated with others in which the country relapsed into forest. It was supposed that over-cropping gradually reduced the fertility of the land until it ceased to be worth cultivating, when it was abandoned and became overgrown with jungle. In some of the reports of the last settlement the cause of the inferiority of some *tappas* was found in the fact that they were the longest inhabited, and gloomy predictions were made as to the future result of continuous cultivation. These anticipations have not been realised. The villages and tracts which were noted as first class at last settlement are at least as good as they were then. Amroha, where I suppose the cultivation is oldest, is still, as it has always been, the richest pargana in the district. In the ancient history of Basti there are periods no doubt when the once cultivated land reverted to forest, but the cause is to be sought in the calamities of war and famine."

The views of the Director of Agriculture, United Provinces.

191. Mr. W. H. Moreland, recently Director of Land Records and Agriculture in the United Provinces, sums up his views as follows:—"A poll of agriculturists would give a vast majority in favour of the view that fertility has decreased. To some extent this opinion is a psychological phenomenon, for the agriculturist's golden age lies always in the past; but its objective basis of truth depends on the period over which the comparison is made. A large proportion of the land in the north of the provinces has within living memory been brought under the plough after a rest that probably lasted for some centuries. It would be contrary to all experience that this land should maintain its virgin productivity under continued cropping. Again, a large proportion of the province used to be thrown waste periodically owing to internal disorder: in Oudh, this process went on until less than 60 years ago, and contemporary observers noted how fertile this land was when it again came under the plough. Thus, it is probably true for the greater part of the provinces, that the land is less productive now than it was *at some particular period or periods*, in the past. The same is probably true of nearly every part of the world; and it involves the biggest of the problems that lie before the agriculturists in America and Australia. But there is no evidence whatever, and I think there are no grounds to infer, that there has been any progressive decrease in fertility once the period of virgin-productivity has passed. My own opinion is that in the old cultivated tracts the system of agriculture has been worked out so as to secure practically constant productivity on the whole and in the long run."

The views of the Director of Agriculture, Bombay.

192. Mr. G. F. Keatinge, recently Director of Agriculture of the Bombay Presidency, thinks that "looking at the matter from a general point of view, the facts regarding the land in the Bombay Deccan and Southern Maratha country are briefly these: Throughout the eighteenth century, cultivation in many parts was intermittent owing to the very unsettled state of the country,

and it is probable that at many periods and in many localities no land except the very best was continuously cropped; so from this point of view there is no reason to suppose that the soil had any tendency to get 'exhausted.' From about 1820 onwards, when settled conditions and security for property were established, a great increase in cultivation set in and land was rapidly taken up. A check occurred owing to a rapid fall in prices, but from 1840 to about 1870 was a period of great agricultural expansion and prosperity, and most of the good land was then taken up. In spite of the somewhat lean period which followed, the tendency to take up all land fit for cultivation continued, till in the present day practically all good land has been taken up and regularly cultivated and much land that is really unfit for cultivation is also cultivated. This latter class of land produces very poor crops and, of necessity, brings down the average outturn *per acre*, but *having regard to the profit obtained and on the capital employed for its cultivation*, its cultivation is not necessarily uneconomic. To sum up, I think we may safely assume that the general average of rainfall now is much the same as it was formerly, and that the cultivators are at least as hardworking and intelligent now as formerly. This being so, the rate of production in any class of land in the Deccan depends, in my opinion, mainly on the amount of capital employed in production."

The views of the Director of Agriculture, Madras

193. Mr. M. E. Couchman, Director of Agriculture of Madras, believes that "when Madras came into British possession it was a rare thing for land to have any saleable value. The land changed hands from year to year, and had to be forced on the cultivators by the Government of the day. This is clear from Munro's correspondence. Under this system the fertility of the land must have been at its lowest, as there was no security to encourage improvements. At the present day both wet and dry lands have very high values, due to the security of tenure and increase of population, and it would no longer pay in most cases to cultivate the land unless it were improved. I believe, therefore, that there is every reason to suppose that, as a general rule, the fertility of agricultural land in this part of India is greater than formerly, and that the tendency is for the fertility to increase rather than diminish."

The views of the Director of Agriculture, Central Provinces.

194. Mr. C. E. Low, Director of Agriculture, Central Provinces, holds that "the general conclusion would be that over most of the province land has not been in regular cultivation for more than 150 years: and even during that space it has been fallow at least one year in ten owing to wars and famines: that *rabi* is usually rotated and *kharif* usually manured; but even where these favourable conditions do not exist there is no reason to suspect deterioration."

The views of Mr. B. C. Bose of the Assam Agricultural Department.

195. Mr. B. C. Bose of the Agricultural Department of Assam says: "The supply of cattle-dung, practically the only manure used in the province, has been greatly reduced, and what there is of it, is reserved principally for that comparatively small area which is devoted to commercial crops like jute, sugarcane, and tobacco, to the deprivation of the rice lands which consequently are less productive than before. Moreover, with the extension of cultivation, inferior descriptions of land which had been lying waste in former times were brought under the plough, causing a still further depression in the average yield of land. On the other hand there are conditions which counterbalance this effect to some extent, such as —

(1) the greater variety of the crops grown,

(2) the greater prevalence of the practice of double cropping which compels the soil to yield more than it would under single cropping,

(3) the greater attention which has begun to be paid by the cultivators to the conservation and use of cattle-dung, and

(4) the greater industry of the tillers of the soil who have to work harder than before in order to keep in line with the continually rising standard of living.

But making all allowance for the compensating effects of these latter factors, there can be no doubt that in the permanently cultivated parts of the country where the soil is under continuous cultivation from year to year and gets no benefit either from river silt or from long periodical rest, the average outturn of land per acre is less now than it used to be (say) 50 or 100 years ago."

Records of Agricultural farms.

196. The records of experimental farms show that, even on plots which have not been manured, the outturn reaches a level of productive power below which it does not fall. These experiments have been corroborated by the famous experiments of a similar nature conducted at Rothamstead (England). Wheat was grown at Rothamstead on the same land for over sixty years and the conclusions were that land continuously cropped with wheat without manure reached a maximum stage of impoverishment in about twenty years, after which the annual outturn remains more or less stationary. It seems that in India also the so-called worn-out soils, having been under cultivation for a considerable period of years, have long since reached a stage of more or less maximum impoverishment, and that the average crop outturns in so far as they depend on the fertility of the soil have been in a more or less stationary condition for many years. Agricultural experts were consulted and their general opinion appears to be the same. They hold that the amount of nitrogen in Indian soils which is lost from cultivation, from drainage, etc., in each year is just balanced by nitrogen obtained, exclusive of that supplied by manures, from (1) rainfall, (2) seeds sown, (3) root material left in the ground and (4) that taken from the atmosphere and put in the soil by the agency of leguminous plants.

Statistics of average yield per acre.

197. The Agricultural Statistics of India contain a statement showing the average yield in pounds per acre of the principal cultivated crops, revised every five years with reference to the results of crop-cutting experiments made annually. The limitations to be placed on the results of these experiments are great, and the results can hardly be used either to prove or to disprove the alleged decrease in the productive power of the soil. The returns are merely examples of successive approximations to the truth. The crop-cutting experiments, however, during the quinquennium 1902-03 to 1906-07, were numerous, and perhaps more accurate than in any of the preceding periods. The following table shows the corrections made in the estimated yields of the important crops during the last three quinquennia in the different provinces in which they are cultivated to an appreciable extent. In all but two provinces they have justified a modification of the provincial averages accepted as correct, the changes being generally in an upward direction. In the case of Bombay, the provincial averages in the quinquennium 1902-03 to 1906-07, are the same as in the previous quinquennium. The experiments in this Presidency did not justify any revision. In the United Provinces, the yield of maize has been increased from 950 lbs. to 1 050 lbs. (quinquennium 1901-02 compared with the previous quinquennium), of sugarcane from 2,500 to 2,600 lbs., and of cotton from 150 to 160 lbs. In the Punjab, the average outturn of irrigated rice has increased from 1,126 to 1,183 lbs., irrigated wheat from 935 to 994 lbs., and irrigated and non-irrigated barley from 903 to 1,053 lbs. and from 520 to 652 lbs. respectively. In Madras, during the quinquennium 1902-03 to 1906-07, the results of 3,348 experiments were worked upon as compared with those of 2,691 experiments in the previous quinquennium. The average yields of the majority of the crops in Madras have been raised, especially in the case of sugarcane, the outturn of which has increased from 5,127 to 6,089 lbs. The figures for rice, bajra, and ragi (irrigated and unirrigated) are also high and the only decreases are in jowar and jinjili (unirrigated).

198. In this enquiry we are concerned only with the question whether there has been any decrease in the fertility during the period under enquiry, and, on the whole, it seems that there has been no such decrease. Extension of cultivation has probably exercised different influences on the average outturns of the various crops in different parts of India. Where inferior lands have been taken up for cultivation, or the better class of lands have been cultivated with the more paying commercial crops and inferior lands have been substituted for the cultivation of foodgrains, the average outturn of foodgrains has undoubtedly decreased. On the other hand, the extension of irrigation, the growth of the practice of double cropping, and the rotation of crops have undoubtedly raised the average outturn of some crops in some of the provinces.

Statement showing estimated yields of important crops in different circles according to crop cutting experiments carried out in each of the quinquennia ending with 1896-97, 1901-02 and 1906-07.

—	IRRIGATED LBS. PER ACRE.			UNIRRIGATED LBS. PER ACRE.			BOTH LBS. PER ACRE.		
	1896-97.	1901-02.	1906-07.	1896-97.	1901-02.	1906-07.	1896-97.	1901-02.	1906-07.
WHEAT.									
United Provinces of Agra and Oudh	980	1,250	1,250	803	800	850	890	1,050	1,050
Punjab	917	935	994	576	642	619	728	770	816
North-West Frontier	..	883	842	..	563	543	..	669	618
Sind	994	1,066	1,229	..	..	..	..	..	..
Bombay	1,250	..	1,250	510	..	510	575	..	575
Central Provinces	925	..	..	570	..	..	600	..	600
Berar	..	..	..	754	687	..	..	..	..
Bihar—Shahabad	..	1,034	754	..	1,065	679	..	..	..
Patna	..	729	..	..	749	..	..	..	..
RICE (HUSKED).									
Assam	..	..	..	834	910	..	..	..	..
United Provinces of Agra and Oudh	1,018	1,050	1,050	619	800	800	625	850	850
Punjab	1,167	1,126	1,183	266	734	771	775	979	1,060
North-West Frontier	..	843	1,202	..	..	..	..	..	..
Bombay	..	..	..	1,230	..	1,230	..	..	..
Central Provinces	..	..	..	..	..	..	670	..	579
Madras	..	1,061	1,115	..	866	926	..	..	..
Bengal—									
Backergunge	..	..	..	1,100	..	..	..	..	..
Winter rice, transplanted	..	1,438	..	..	1,214	..	..	..	1,344
Winter rice, broad cast	..	..	..	..	2,057	..	..	..	
Autumn rice, transplanted	..	..	..	..	..	..	..	..	..
Autumn rice, broad cast	..	..	..	..	..	..	..	..	..
Murshidabad	..	994	908	1,100	..	..	..	..	..
Winter rice, transplanted	..	..	..	..	1,265	1,024	..	..	..
Winter rice, broad cast	..	..	..	..	608	899	..	..	..
Autumn rice, transplanted	..	667	..	..	614	..	..	..	..
Autumn rice, broad cast	..	..	..	..	656	744	..	..	..
Bihar—									
Shahabad—									
Winter rice, transplanted	..	822	804	..	796	701	..	..	..
Winter rice, broad cast	..	941	829	..	..	464	..	..	..
Autumn rice, transplanted	..	..	..	..	..	..	..	..	..
Autumn rice, broad cast	..	..	..	..	..	..	..	..	..
JOWAR.									
United Provinces of Agra and Oudh	..	..	..	474	600	650	..	600	..
Punjab	595	552	561	374	388	447	481	426	479
North-West Frontier	..	..	..	..	602	326	..	602	478
Sind	853	1,798	1,238	..	..	..	..	..	..
Bombay	1,550	..	1,550	670	..	670	..	..	..
Central Provinces	..	..	..	570	..	638	..	..	..
Berar	..	..	..	815	887	..	..	..	..
Madras	..	1,065	1,118	..	679	647	..	..	..

Statement showing estimated yields of important crops in different circles according to crop cutting experiments carried out in each of the quinquenniums ending with 1896-97, 1901-02 and 1906-07.

—	IRRIGATED LBS. PER ACRE.			UNIRRIGATED LBS. PER ACRE.			BOTH LBS. PER ACRE.		
	1896-97.	1901-02.	1906-07.	1896-97.	1901-02.	1906-07.	1896-97.	1901-02.	1906-07.
RAGI									
Bombay	1,400	..	1,400	1,060	..	1,060	..	..	..
Madras	..	1,296	1,405	..	798	955	..	..	..
GRAM									
Bihar —									
Shahabad	..	1,088	745	..	1,195	666	..	..	..
Bengal—									
Murshidabad	..	1,202	..	..	739	626	..	..	..
United Provinces of Agra and Oudh	719	950	950	639	800	800	642	800	800
Punjab	755	835	884	522	634	656	549	659	701
North-West Frontier	..	632	884	..	406	438	..	407	439
Sind	478	469	469	..	..	..	..	..	..
Bombay	1,200	..	1,200	410	..	410	..	..	..
Central Provinces	..	..	..	550	..	525	..	..	..
Berar	..	..	..	605	662	Included in C. P.	..	..	..
RAPESEED OR MUSTARD.									
Bengal	..	..	..	..	..	..	..	492	492
United Provinces of Agra and Oudh	..	..	..	..	600	600	450	600	..
Punjab	439	380	404	373	330	205	383	331	254
North-West Frontier	..	450	516	..	381	398	..	388	407
Sind	513	653	590	..	..	..	..	..	..
Bombay	..	..	..	625	..	625	..	..	..
COTTON (CLEANED).									
United Provinces of Agra and Oudh	169	190	220	128	130	130	135	150	160
Punjab	100	109	78	57	80	64	83	103	74
North-West Frontier	..	183	169	..	72	73	..	142	142
Sind	147	308	308	..	..	..	..	..	..
Bombay	..	..	..	100	..	100	..	..	..
Central Provinces	..	..	..	75	..	100	..	..	..
Berar	..	..	..	137	144	Included in C. P.	..	..	..
Madras	..	..	66	..	..	44	..	..	..

CHAPTER VII.

Causes of the rise of prices peculiar to India—other causes.

INCREASED DEMAND FOR COMMODITIES IN INDIA.

Large increase in the demand for commodities.

199. There can be no doubt that there has been a large increase in the demand for all kinds of commodities on the part of consumers in India. Statistics showing the average quantity consumed per head of the population have sometimes been put forward to prove this. These figures, however, are so largely conjectural that they can hardly be of any use whatsoever. Nevertheless, all experienced officers in the various parts of India, whom we consulted during our tours, were agreed that there has been an increased demand not only for luxuries but also for the finer qualities of foodgrains at the expense of the cheaper kinds. The great development, on modern lines, of industries in India has been followed by an increase in the number of the industrial labourers, and this growth has necessarily involved an increased consumption of all kinds of food-stuffs in industrial centres. In the other parts of the country also, this advance in the standard of living has played an important part in stimulating consumption.

Higher standard of living amongst all classes.

200. A noticeable change has taken place in the style of living of all classes of society, upper, middle and lower, and the demand for all kinds of the necessaries of civilised existence in regard to food, clothing, housing, education and society has increased, ample evidence of which we received in our tours through the different parts of India. Among the upper and middle classes, there was visible everywhere a tendency for a gradual assimilation of the western style of living so far as is consistent with local conditions. The change in the style and material of clothing, the increased demand for furniture and better housing accommodation, even with gardens attached, the wider use of stationery, bicycles and typewriters, the increase of correspondence through the post office and the telegraph, the huge expansion of passenger traffic on railways are but some instances of this higher standard of living. It is, however, difficult to distinguish between cause and effect in dealing with this question. The advance in the style of living has undoubtedly been responsible, to some extent, for the rise in the prices of several classes of articles, but, on the other hand, rise of prices has also been instrumental in raising the standard of living, specially among the lower classes of the population, and, thereby, in stimulating the consumption of a number of articles. The spread of education has brought about a decided advance in the standard of living among the educated classes. In the middle classes of Indian society, the general increase in desires in such matters as food, housing, clothing, education and society has been very marked, while among the wealthy there has been a growth in extravagant tastes in every direction; this has resulted in an increased demand for all classes of luxuries. Witnesses were practically unanimous in saying that the luxuries of the past have become the necessities of to-day. The change in the standard of living among these two classes has been progressing for a long time past and cannot be said to have followed from the rise of price; the improved style of living having, on the other hand, stimulated the demand for commodities can be held to have contributed to the rise. This cannot, however, be said about the lower classes of the population. In that class also, there has, no doubt, been a distinct improvement in the style of living. It is not uncommon for them now to use shoes of European pattern, clothing of a finer texture, shirts, coats, jerseys, pagris and caps, umbrellas, copper and brass utensils, lanterns, etc. They are also able to afford wheat flour and the other better kinds of foodgrains, to indulge in tea and coffee, and in many cases mud houses and thatched roofs are giving place to masonry buildings and corrugated iron or, at least, tiled roofs. But it is difficult

to say whether this improvement is the cause or the effect of the higher level of prices. These two act and react upon each other, and although the increased prices of their produce or their increased wages might be said to have enabled them to raise their standard of living, this improvement has, on the other hand, created or stimulated demand for several classes of commodities including miscellaneous articles of food like fish, vegetables, ghee, meat, tea and coffee, hides and skins, metals and building materials, and thus helped to raise the general price-level.

Large improvement in the standard of living in particular areas.

201. The improved standard of living among the lower classes, as a cause of the rise of prices, has manifested itself largely in the tracts which grow jute and cotton and wheat. In Chapter IV it has been shown that the rise in the price-level in Bengal Northern and Eastern, has been exceptionally high, though the circle had the good fortune not to have shared in any of the calamities of the season which befel other parts of the country in the last decade. The rise here is undoubtedly the effect of the substitution of the cultivation of jute for that of foodgrains and of the higher standard of living, brought about by a large increase in the profits made from the cultivation of jute. Thus it was estimated that, in 1906, the jute crop in Bengal, of which the largest share is grown in the districts comprised in the Northern and Eastern circle, fetched the enormous sum of forty crores of rupees, and that of this, fifteen and a half crores were clear profit. This enabled all, who shared in the profit. to raise their standard of living by purchasing more of the food they relished most, *e.g.*, rice, fish, vegetables, ghee, meat, etc., and at the same time placed them in a position to pay more for such food. This might also have led as has been suggested by some, to the retention of rice stocks, which would otherwise have come on to the market, and it is this withholding of stocks which also probably had a share in causing the exceptional rise in the price-level of the circle in the quinquennium 1905-09.

202. The changes in the standard of living will be analysed in detail in dealing with the last term of reference, namely, the effects of the change in prices on the country as a whole and on the various sections of the community. It is, however, clear that with the rapid growth in desires of all classes of people, especially during the last decade, there has been a greater demand for all kinds of commodities.

INCREASED COST OF PRODUCTION.

Increased cost of production not a cause but an effect.

203. It was alleged by many witnesses that an important cause of the recent rise in the prices of Indian produce was the increased cost of cultivation. Owing to an increase in the cost of seeds and manure, in the cost and maintenance of plough-cattle and in wages, the cost of cultivation has undoubtedly increased. But to say that this has caused an increase in the prices of agricultural products is, I think, a case of mistaking the cause for effect. High wages, and more especially, high prices of land, in recent years are rather effects than causes of the high prices of farm produce. If the price of Indian products were to rise still higher and land for cultivation were to become still more desirable, there would naturally be a rise in the price of land. As Professor Carver, of the Harvard University, has well said :—

> "There is no reason why land should command a high price for farming purposes, except a rise in the prices of farm products or a fall in the cost of cultivating the land. To say that the farm products are high because land values are high is quite as foolish as saying a tree is tall because its shadow is long."

Cost of production has not much influence on prices in India.

204. It is true that just as a rise of prices leads to a rise in the cost of cultivation, so does a rise in the cost of cultivation in its turn ordinarily react on the price-level and cause it to rise. The circumstances of India are, however, exceptional in this matter. The Indian cultivator is generally uneducated and incapable of forming any estimate of his cost of cultivation. Himself and the whole of his family are generally employed either on the fields or in tending his cattle, and he hardly ever realises what he would have to pay if he had to employ hired labour for his work. He is content so long as his fields and his cattle bring him the bare means of subsistence and enable him to pay the rent of his lands. His lands have

a special interest to him and when he finds that the yield of his fields is not sufficient he does not hesitate to run into debt to provide himself with his necessities, the most important of which are the means of cultivating his lands to which he sticks as long as he is not compelled by his creditors to part with them. Thus, in India, it is not the producer who fixes the price of his produce after calculating the cost of production, but it is the competition among the purchasers, or, in other words, the demand, which regulates the price. The cost of cultivation has not, therefore, much influence on prices in India.

EXPANSION OF COMMUNICATIONS.

Development of railways and roads—their influence on prices.

205. One of the most important factors that have raised the general price-level in India is the expansion of communications, both railways and roads. The next two tables show the growth of the different railway systems in India during the years 1890 to 1912 and the mileage of railways and metalled roads in the different circles at intervals of every five years. There has been a more or less rapid growth of both railways and roads in almost every circle, the expansion having been greatest in Assam, Agra Provinces East, Agra Provinces North and West, Punjab East and in the two circles of Bengal. In most of these circles the rise in the general price-level has been very high. The total mileage of railways in all India has been more than doubled during the period. Before the advent of railways, in remote areas, whenever production was plentiful, prices went down very low because of the difficulty and, in many cases, the impossibility of transporting it profitably to a place where prices were higher. On the other hand, whenever the crops failed, prices rose exceptionally high owing to the difficulty of importing supplies from outside. Railways have now linked up different parts of the country and have constituted India into, as it were, one market. The deficiency in one part of India now makes itself felt all over the country within a very short space of time, and is made good at once, the rise in the price-level being comparatively small. Every village and every district which is connected by rail are no longer self-supporting units. The powerful and ubiquitous agency of organised commerce has taken the place of the former system, the isolated and self-sufficing village. It was most interesting in our local enquiries to observe how a general levelling of prices was taking place throughout the areas intersected by railways and also how local prices are now-a-days greatly affected by prices in distant parts of the country.

Statement showing the Mileage of the different Railways at the end of each of the years 1890—1912.

Year.	East Indian Railway.	Eastern Bengal State Railway.	Bengal-Nagpur Railway.	Bengal and North-Western Railway.	Oudh and Rohilkhand Railway.	North-Western State Railway.	Great Indian Peninsular Railway and Indian Midland Railway.	Bombay-Baroda and Central India Railway.	Madras and Southern Mahratta Railway.	South Indian Railway.	Other Railways.	Total.	Average annual increase for successive quinquennial periods.	Index numbers.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1890 .	1,633	895	586	719	684	2,565	2,232	2,245	2,010	1,010	1,282	15,865	..	93
1891 .	1,795	908	834	736	684	2,480	2,232	2,316	2,119	1,071	1,521	16,696	..	97
1892 .	1,795	944	834	748	684	2,605	2,232	2,316	2,343	1,071	1,576	17,148	..	100
1893 .	1,795	966	901	748	732	2,605	2,232	2,359	2,655	1,071	1,762	17,826	..	104
1894 .	1,841	967	990	748	788	2,605	2,232	2,249	2,655	1,126	1,787	18,188	..	106
1895. .	1,877	967	1,065	748	788	2,642	2,432	2,449	2,655	1,126	2,007	18,756	578	109
1896 .	1,877	970	1,139	766	838	2,880	2,433	2,509	2,663	1,126	2,164	19,365	..	113
1897 .	1,885	974	1,181	779	883	3,370	2,433	2,590	2,667	1,126	2,363	20,251	..	118
1898 .	1,893	1,014	1,392	872	1,021	3,370	2,481	2,590	2,822	1,145	2,446	21,046	..	123
1899 .	1,972	1,098	1,511	1,089	1,023	3,569	2,749	2,764	2,910	1,171	2,720	22,606	..	132
1900 .	2,101	1,144	1,630	1,141	1,142	3,626	2,819	2,755	2,945	1,172	3,165	23,640	977	138
1901 .	2,101	1,155	1,635	1,168	1,142	3,756	2,819	2,755	2,945	1,201	3,405	24,082	..	140
1902 .	2,187	1,195	1,635	1,168	1,144	3,786	2,819	2,782	2,945	1,405	3,507	24,573	..	143
1903 .	2,199	1,194	1,856	1,258	1,205	3,894	2,827	2,837	2,945	1,477	3,760	25,452	..	148
1904 .	2,199	1,190	1,949	1,294	1,263	3,956	2,941	2,921	2,945	1,539	3,759	25,956	..	151
1905 .	2,229	1,329	2,049	1,362	1,272	4,116	3,004	3,054	3,022	1,565	3,803	26,805	633	156
1906 .	2,282	1,364	2,068	1,490	1,320	4,325	3,010	3,045	3,027	1,650	3,922	27,503	..	161
1907 .	2,473	1,367	2,194	1,658	1,330	4,441	3,026	3,136	3,034	1,671	4,015	28,345	..	165
1908 .	2,480	1,368	2,376	1,750	1,330	4,441	3,082	3,209	3,084	1,695	4,138	28,953	..	169
1909 .	2,480	1,597	2,417	1,851	1,338	4,545	3,157	3,475	3,121	1,695	4,286	29,962	..	175
1910 .	2,511	1,597	2,450	1,878	1,433	4,782	3,165	3,475	3,127	1,695	4,429	30,542	747	178
1911 .	2,559	1,600	2,546	1,934	1,543	4,880	3,165	3,509	3,127	1,695	4,710	31,208	..	182
1912 .	2,624	1,652	2,554	1,937	1,638	4,942	3,165	3,560	3,127	1,754	5,028	31,981	..	186

Statement showing the growth of Railways and Metalled Roads in different circles from 1890—1912.

[In hundreds of miles.

	Growth of Railways.						Growth of metalled Roads.					
	1890.	1895.	1900.	1905.	1910.	1912.	1890.	1895.	1900.	1905.	1910.	1912.
Assam	1	1	4	7	9	9	1	1	1	1	2	2
Bengal N. and E.	4	5	8	9	11	11	2	3	3	3	4	4
" S. and W.	7	8	13	15	16	17	30	31	33	33	36	38
Chota Nagpur	2	2	3	4	6	7	5	5	5	5	7	8
Bihar	11	12	15	16	19	20	14	14	15	17	18	18
Agra Provinces East	3	3	7	8	10	10	12	12	13	14	15	15
Bundelkhand	3	3	3	3	3	3	5	6	7	8	9	9
Agra Provinces N. and W. including Oudh.	20	22	25	28	33	37	41	42	45	50	54	57
Punjab East	11	12	16	18	24	25	20	20	19	21	26	27
" West	5	5	6	8	8	8	6	6	7	11	12	12
Sind	4	6	8	9	9	10	..	..	1	1	1	1
Gujarat	3	3	4	4	4	4	5	5	5	6	8	8
Konkan	2	2	2	2	2	2	5	7	8	9	15	16
Deccan	12	12	14	14	15	15	17	20	21	32	39	40
Berar	2	2	2	2	2	2	3	3	4	5	7	7
Central Provinces	10	10	12	14	17	18	13	14	18	22	28	31
Madras N. and E.	1	6	8	8	9	9	34	36	38	42	48	49
" North	5	7	7	8	8	8	36	39	39	37	38	36
" South	12	14	15	17	17	18	86	89	91	92	99	10,9
" West	1	1	1	2	3	3	29	34	30	31	32	32
TOTAL	11,9	13,6	17,3	19,6	22,5	23,6	36,4	38,7	40,6	44,0	49,8	51,9

206. The large exports of rice from Burma to Calcutta, Bombay and Madras, during the quinquennium of exceptionally high prices, *viz.*, 1905—09, illustrate how impossible it is for a province with abundance of food to border on one with a population in dire want of supplies. The effect of export from district to district is, in many cases, as already noted, to raise prices. Mangoes, for example, used to sell in the landlocked areas of the Konkan at one pice per basket, but, owing to communication with Bombay, they have become very dear in the Konkan itself. The next table shows the enormous growth of railway traffic in India.

Statement showing the development of Railway Traffic in India (including Burma), 1890—1911.

Year.	Total mileage opened.	PASSENGER TRAFFIC.								GOODS TRAFFIC.							
		Total number of passengers.		Passenger mileage.		Average miles carried.	Total earnings in lakhs of rupees.	Average earnings per passenger, in pies.	Average rate charged per mile in pies.	Quantity carried.		Ton mileage.		Average miles carried.	Total earnings in lakhs of rupees.	Average earnings per ton in rupees.	Average rate charged per ton per mile, in pies.
		In millions.	Index numbers.*	In millions.	Index numbers.					In millions of tons.	Index numbers.*	In millions.	Index numbers.*				
1890	16,404	114	88	4,787	89	41·96	63	105·32	2·51	23	83	3,509	82	155 18	1,30	5 7467	7·11
1891	17,283	123	95	5,226	08	42·54	69	107·22	2·52	26	96	4,439	103	169·71	1,56	5·9666	6·75
1892	17,769	127	99	5,265	98	41·33	69	104·17	2·52	26	96	4,234	99	160·77	1,48	5·6101	6·70
1893	18,459	136	105	5,602	105	41·34	73	103·36	2·50	29	106	4,426	103	153·44	1,52	5·2748	6·60
1894	18,840	146	113	5,890	110	40·42	76	99·81	2·47	33	119	4,859	113	148·85	1,62	4·9773	6·42
1895	19,467	153	119	6,184	116	40·40	80	100·61	2·49	34	123	4,941	115	146·94	1,61	4·8677	6·30
1896	20,209	160	124	6,441	120	42·38	82	98·95	2·45	32	119	4,588	107	141·31	1,54	4·7473	6·45
1897	21,115	151	117	5,924	111	39·34	76	97·17	2·47	34	124	4,796	112	141·38	1,59	4·6833	6·36
1898	22,024	152	117	5,826	109	38·44	76	96·10	2·50	36	130	5,712	133	160·25	1,78	5·0080	6·00
1899	23,057	162	125	6,191	116	38·28	81	96·09	2 51	40	145	6,164	144	155·07	1,92	4·8299	5·98
1900	24,752	176	137	7,068	132	40·09	90	97·47	2·51	43	157	6,650	155	155·02	2,04	4·7475	5·88
1901	25,363	195	151	7,872	147	40·42	1,01	99·29	2·48	43	159	7,066	165	162·85	2,12	4·8941	5·77
1902	25,931	197	152	7,872	147	40·13	1,03	100·31	2·51	46	167	7,178	167	157·62	2,12	4·6630	5·68
1903	26,956	210	163	8,388	157	39·90	1,10	100·29	2·51	48	175	7.632	178	160·05	2,24	4·7016	5·64
1904	27,565	227	176	9,007	168	39·66	1,18	99·44	2·51	52	191	8,972	209	172 37	2,52	4·8391	5·39
1905	28,295	248	192	9,900	185	39·90	1,27	98·55	2·47	55	201	9,041	211	176·47	2,62	4·7704	5·19
1906	29,089	271	210	10,688	200	39·43	1,37	96·92	2·46	59	215	9,771	228	165·97	2,76	4·6878	5 42
1907	29,957	306	237	11,841	221	38·71	1,50	94·44	2·44	62	227	10 841	252	174·58	2,92	4·7090	5·18
1908	30,576	321	249	12,103	226	37·68	1,54	91·87	2·44	62	228	9,926	231	159·07	2,63	4·2181	5·09
1909	31,490	329	255	12,365	231	37·54	1,57	91·28	2·43	61	223	9,340	218	153·37	2,81	4·6180	5·78
1910	32,099	372	288	13,432	251	36·15	1,71	88·46	2·45	66	240	12,093	282	184·33	3,04	4·6387	4·83
1911	32,839	390	302	14,373	268	36·87	1,85	91·16	2·47	71	261	13,358	311	187·44	3,29	4·6210	4·73

* Average of 1890—1894 = 100.

Sir Reginald Craddock, K.C.S.I., on communications in the Central Provinces.

207. Sir Reginald Craddock has shown how the effect of increased communications with the outside world has affected prices in the Central Provinces: "The policy of road-making initiated by Sir R. Temple in 1862 was the first factor in bringing about a rise in the prices of agricultural produce, but the quickening of trade, which this policy would have brought about, would necessarily have been a gradual process, had it not been suddenly stimulated by the effect of the American War of Secession in 1862. The sudden demand for raw cotton to supply the Lancashire Mills caused the price of that commodity to rise by leaps and bounds. The acreage placed under the crop expanded enormously, and the prices of grain and oilseeds at once rose in sympathy. Later on came a reaction; but the export trade had received an impetus which was never wholly withdrawn. The opening of the railway to Nagpur in 1867; the rise of the cotton industry ten years later; the simultaneous opening out of markets in other parts of India; the further extensions of the Chhattisgarh line in 1882, and of the Bengal-Nagpur line in 1889, have all contributed to an increased demand for the produce of the country, and with it to an increased purchasing power of the owners of the land, the price of every kind of agricultural product having steadily risen. Now and then there have been fluctuations; a dull foreign trade or plentiful harvests have caused a temporary and partial fall; but succeeding failures or reviving exports have again come into play, until rates, which thirty or forty years ago would have been regarded as famine prices, are now looked upon as the normal rates which every agricultural producer looks to realise. The history of prices, forming at once the most important factor in the prosperity of the agricultural classes and the main determinator of the ratio of rent enhancement, divides itself into two great periods, that prior to and including the year 1862 and that from 1863 onwards."

Sir Frederick Nicholson, K.C.I.E., on communications in Madras.

208. Sir Frederick Nicholson said as regards the Coimbatore district of the Madras Presidency: "From various reports it is known that in 1800 there were practically no roads, but merely tracks; there was not a cart in the district, and what traffic existed was carried on by pack bullocks, and by ponies and by basket boats on the Cauvery. The result was not only that all imported commodities were dear, but export trade was insignificant, and only in valuable articles such as ghee, spices and so forth. Grain could not be moved, so that prices depended on local scarcity or abundance, with the result that substantial ryots were no worse off in bad years than in good, for storage was a necessity, so that deficient crops were supplemented from the surplus of good years, which then fetched very high prices; while in good years, especially if consecutive, the markets were glutted, prices fell very heavily, and the ryots who were compelled to sell in order to meet the Government and other demands were ruined by their own superabundance. This reproach remained for many years, so that average prices between 1849—53 were lower than at any previous time, while in times of famine, as in 1824 and 1837, the difference in prices between famine and non-famine districts was very serious. In 1887, there were in Coimbatore, above 1,500 miles of metalled or gravelled roads, besides numerous cross-roads and village lanes and 147 miles of railway—Madras and South Indian. The result of this improvement is an immense internal traffic between the various trade centres, such as weekly markets and towns, and a considerable import and export trade in which thousands of carts take part with railways. Every village has several, and every town hundreds of carts which are extensively built in many places. The value of the rail-borne traffic has not been ascertained, but one or two facts may be noted—(1) that in the famine of 1877 grain was poured by thousands of tons, while the price of rice at the height of famine differed from that at Tanjore, whence it was supplied, at only about 3 lbs. per rupee; (2) that private trade has been so stimulated by the railway that at the least hint of scarcity in any other district or province, grain is at once moved, *e.g.*, in the early months of 1884, scarcity seemed imminent in Northern India, and the Coimbatore Railway Stations were crammed with grain *en route* northwards;

(3) that trades such as the considerable tanning industry, coffee growing, etc., have been begotten by the railway, which carries the produce cheaply to the coast; (4) that upon the making of the railway, prices, to the great advantage of the ryot, speedily doubled owing to export facilities; with this great rise in grain prices, land prices also rose, so that land, especially near the railways, is now worth from 6 to 10 times its value when the Madras Railway was made; (5) that the production of valuable crops has been greatly stimulated, tobacco, which has long been grown largely owing to the West Coast demand, being excepted. It is to be noted that railways cannot yet compete with carts for local traffic of, say, 30 miles' run, owing to the necessary delay in getting trains and the low rates at which ryots can afford to hire out their carts during the non-cultivation season."

Mr. W. H. Moreland C.I.E., I.C.S., on communications in the United Provinces.

209. Mr. W. H. Moreland has pointed out that the same process is at work in Northern India. In his Decennial Report on the material condition of the people of the United Provinces of Agra and Oudh, he shows that the mileage of railways opened for public traffic has risen in ten years by 32 per cent., while the total traffic has increased by as much as 75 per cent. "The development of the transport system," he remarks, "has resulted in the continuance of the process, noticed ten years ago, of bringing the standard of prices in the remoter district close to that of the centre of trade; particularly speaking, it may be said that almost every district in the Provinces is now in such close relation with the great wholesale markets that no lasting depression of prices below the ordinary level is possible in any locality. This effect is not confined to the Provinces, as the whole of India may now almost be described as one market. In 1889 and 1900, for instance, the range of prices bore no relation to the market conditions of the Provinces taken by themselves."

Sir Francis Webster on the development of world communications.

210. At the last meeting of the economic section of the British Association (1912), Sir Francis Webster in a striking paper on "A consideration of some of the causes affecting prices and wages during the last 40 years" pointed out the great increase in communications between distant countries which resulted in the linking up of markets. Wagons and road traffic for long distances were everywhere giving place to railways, and ships to steamers. He says "Supplies of all kinds, instead of coming forward slowly and irregularly by road and sailer, were being delivered more and more rapidly and certainly by rail and steamer. The extension of electric communication added strength to the new conditions. For a number of years the effect was great and continuing. Forty years ago, in our own flax and hemp trade, we got none of the previous year's crop till May and June of the succeeding year. The trade had to depend on the fibre grown the year before. Now the new crop begins to come in the November of the year in which it is grown. By the months of May and June much of it is worked up, and the greater part of it is in spinners' hands."

THE LOWERING OF THE DIRECT AND INDIRECT COST OF TRANSPORT.

Reduction in transportation charges.

Railway freights.

211. The lowering of the direct and indirect cost of transport in India itself and between the Indian ports and foreign countries is another of the most important causes, which has raised the general price level in India. It has already been explained that statistics of railway freights for selected articles and for selected leads on the principal railways have been compiled and are published with the statistics appended to this report. The accompanying table gives an abstract, showing the index numbers of these rates of freights in different years as compared with the standard period, 1890—94. A glance at this statement will show how very large the reduction in freight has been in the case of coal and tea, being as much as 40 per cent., while in the case of jute, jute manufactures and sugar it has been 27 to 31 per cent. The smallest reduction has been in grains and pulses and raw cotton, but here also it has amounted to 20 per cent. This general lowering of the rates of freight has tended to make prices in upland districts approximate more and more to those prevailing in central markets and the seaport towns; while prices at the latter stations have continued in a

higher level in sympathy with the prices in foreign countries. Thus, if the price of wheat is taken into consideration, a rise in Mark Lane price would raise the price of wheat at Karachi, where the rise would be greater, if there is simultaneously a fall in the freight from Karachi to London. The rise in the price at Karachi, again, would cause a corresponding increase in the prices prevailing in the interior of the Punjab, where there would be a further enhancement if the Railway were to reduce the rates of freight from the Punjab to the Karachi port. Mark Lane price of wheat being the dominating factor for the price of wheat at Karachi, a reduction in the rates of freight would advance prices at all stations from which the wheat to be exported from Karachi has to be obtained. It may be argued that the increased exports, due to the lowering of freights, would cause an increased supply in the foreign markets, and thereby tend to lower prices in those markets, which again would react on the prices of this country. The volume of the additional supply, due to increased exports, would, however, be very small compared with the total supply in the foreign markets, and its influence on prices would be inappreciable. The effect of a reduction of freights would, on the whole, be to raise prices.

Statement showing the growth of goods traffic on railways and the decrease in freights.

Years.	Goods Traffic.			Index numbers of Freights.								
	Quantity carried (In millions).	Ton mileage (In millions of tons).	Index numbers.	Grains and pulses.	Sugars.	Tea.	Cotton, raw.	Cotton piece goods.	Jute.	Gunny bags and cloth.	Coal and coke.	General average.
1890	23	3,509	82	103	102	103	104	103	101	102	109	103
1891	26	4,439	103	102	102	101	103	103	102	102	109	103
1892	26	4,234	99	100	100	98	98	99	99	100	95	99
1893	29	4,426	103	98	98	99	98	98	99	100	94	98
1894	33	4,859	113	97	98	99	97	97	99	96	93	97
1895	34	4,941	115	98	97	100	95	96	94	96	93	96
1896	32	4,588	107	96	96	97	92	96	94	96	92	95
1897	34	4,796	112	92	94	94	91	94	87	94	91	93
1898	36	5,712	133	91	89	89	89	93	90	94	91	92
1899	40	6,164	144	89	84	88	91	89	83	87	90	89
1900	43	6,650	155	90	84	87	91	87	82	88	89	88
1901	43	7,066	165	88	82	84	91	85	80	88	89	86
1902	46	7,178	167	87	80	79	90	83	81	87	83	85
1903	48	7,632	178	85	76	78	88	82	80	86	77	83
1904	52	8,972	209	84	75	77	84	82	80	83	76	82
1905	55	9,041	211	84	73	77	84	81	79	83	74	80
1906	59	9,771	228	84	74	76	82	79	82	82	74	78
1907	62	10,841	252	82	73	74	81	78	80	77	59	75
1908	62	9,926	231	81	72	69	80	76	75	76	59	73
1909	61	9,340	218	80	70	67	80	76	74	76	59	73
1910	66	12,093	282	80	69	66	80	75	74	76	59	72
1911	71	13,358	311	80	69	64	82	75	73	76	60	72
1912	..	..	..	80	69	62	80	75	73	75	60	72

Maritime freights.

212. Index numbers of outward and inward maritime freights have also been calculated for the same basic period, namely, 1890—94; the averages of these for the different quinquenniums are shown below :—

	1890 to 1894.	1895 to 1890.	1900 to 1904.	1905 to 1909.	1910.	1911.	1912.
Calcutta to London, Liverpool, etc.	100	84	93	89	99	105	129
Bombay to London and Liverpool.	100	81	84	73	87	108	143
Madras to London . .	100	87	78	75	84	82	100
Karachi to Liverpool .	100	87	90	82	88	94	117
AVERAGE .	100	84	88	83	92	99	123

213. In these freights also, there was a large fall in the quinquennium 1905—09, but since then they have been rising again and at the present moment are considerably higher than in the basic period. Freights always vary according to the demand, and in years of famine when there is a heavy fall in the exports from India, the demand for outward freight is slack and there is, consequently, a reduction in the rates.

IMPROVEMENT IN GENERAL MONETARY AND BANKING FACILITIES AND AN INCREASE IN CREDIT.

Growth of Bank capital and deposits

214. There has been a great improvement in banking and monetary facilities during the period under enquiry and it has been specially marked since 1905. The extended use of credit in India has undoubtedly had an important effect on prices. The evidence from statistics regarding the growth of banking in India is almost astounding. The following statement shows the growth of private deposits in the Presidency and other banks and their capital and reserves for each year from 1890, and these figures have been converted to percentages of the standard period (1890—94). The figures relate to the three Presidency Banks of Bengal Bombay, and Madras for the whole period and for the following joint-stock Banks whose head offices are located in India and the Exchange Banks whose head offices are located abroad, from the years (noted against each) from which figures for the respective banks are available :—

Indian Joint-stock Banks—	
Allahabad Bank, Ld.	1890
Bank of Upper India, Ld.	1890
Alliance Bank of Simla, Ld.	1890
Oudh Commercial Bank, Ld.	1890
Commercial Bank of India, Ld. (now defunct)	1890—1907
Deccan Bank, Ld.	1891—1900
Punjab Banking Co., Ld.	1891
Bank of Calcutta, Ld. (now defunct)	1895—1905
Punjab National Bank, Ld.	1895
Bank of Burma, Ld.	1905
Bank of India, Ld.	1906
Bank of Rangoon, Ld.	1906
Indian Specie Bank, Ld.	1907
Indian Bank, Ld.	1907
Bengal National Bank, Ld.	1908
Bangalore Bank, Ld.	1908
People's Bank of India, Ld.	1908
Bombay Merchants' Bank, Ld.	1909
Kayastha Trading and Banking Corporation, Ld.	1910
Exchange Banks—	
Chartered Bank of India, Australia and China	1890
Delhi and London Bank	1890
Honkong and Shanghai Banking Corporation	1890
National Bank of India	1890
Comptoir National d'Escompte de Paris	1890
Mercantile Bank of India	1893
Yokohama Specie Bank	1891
Deutsch-Asiatische Bank	1897
International Banking Corporation	1903
Russo-Asiatic Bank (formerly Russo-Chinese Bank)	1903
Eastern Bank	1910

215. These tables do not include such banks of deposit as do not possess a minimum of five lakhs of rupees of paid-up capital and reserve fund combined, nor the numerous money-lending and pawn-broking establishments which are at present registered annually as ' banks ' under the Indian Companies' Act. It may be noted that the paid-up share capital of the banks, whose head offices are located in India and which are exclusively Indian, *i.e.*, all banks included in

the table, excluding Exchange Banks, has increased by 43·3 per cent. during the decade ending 1911. If the reserves are added to the capital, the increase in both combined is 55·7 per cent. in the same period. The capital and reserves of the joint-stock Banks, apart from the Presidency Banks, have increased in the same decade by 192 per cent., the increase in capital being 215 per cent. and in the reserves 150 per cent.

Growth of capital and private deposits in Banks in India (Presidency and other Banks).

[In lakhs of Rupees.

Years.	Total capital and reserves of Indian Banks.	PRIVATE DEPOSITS.				Grand Total.	INDEX NUMBERS.					
		Presidency Banks.	Exchange Banks.	Other Banks.	Total.		Total capital and reserves.	PRIVATE DEPOSITS.				Grand Total.
								Presidency Banks.	Exchange Banks.	Other Banks.	Total.	
1890 . . .	4,99	14,76	7,54	2,71	25,01	30,00	96	110	89	73	98	97
1891 . . .	5,05	14,13	8,63	3,46	26,22	31,27	98	106	101	93	102	102
1892 . . .	5,12	12,67	8,53	3,87	25,07	30,19	99	95	100	104	98	98
1893 . . .	5,27	12,10	8,13	4,08	24,31	29,58	102	91	95	109	95	96
1894 . . .	5,43	13,13	9,76	4,50	27,39	32,82	105	98	115	121	107	107
AVERAGE 1890-94 .	**5,17**	**13,36**	**8,52**	**3,72**	**25,60**	**30,77**	**100**	**100**	**100**	**100**	**100**	**100**
1895 . . .	5,85	13,12	10,31	5,66	29,09	34,94	113	98	121	152	114	114
1896 . . .	6,09	12,92	10,15	5,38	28,45	34,54	118	97	119	145	111	112
1897 . . .	6,51	10,16	9,09	6,81	26,06	32,57	126	76	107	183	102	106
1898	6,89	10,78	9,49	6,89	27,16	34,05	133	81	111	185	106	111
1899 . . .	6,94	11,41	10,70	7,43	29,54	36,48	134	85	126	200	115	116
AVERAGE 1895-99 .	**6,46**	**11,65**	**9,95**	**6,43**	**28,06**	**34,52**	**125**	**87**	**117**	**173**	**110**	**112**
1900 . . .	6,87	12,88	10,50	8,08	31,46	38,33	133	96	123	217	123	125
1901 . . .	7,15	14,64	11,83	9,00	35,47	42,62	138	110	139	242	139	139
1902 . .	7,31	17,66	13,70	10,44	41,80	49,11	141	132	161	280	163	160
1903 . . .	7,36	17,79	16,15	11,12	45,06	52,42	142	133	190	299	176	170
1904 . . .	7,55	21,97	16,32	11,51	49,80	57,35	146	164	192	309	195	186
AVERAGE 1900-04 .	**7,25**	**16,99**	**13,70**	**10,03**	**40,72**	**47,97**	**140**	**127**	**161**	**263**	**159**	**156**
1905 . . .	7,86	22,26	17,05	11,99	51,30	59,16	152	167	200	322	200	192
1906 . . .	8,30	2[illegible],45	18,09	11,55	57,09	65,39	161	205	212	310	223	213
1907 . . .	9,48	28,11	19,17	14,00	61,28	70,76	183	211	225	376	230	230
1908 . . .	9,78	28,61	19,52	16,26	64,39	74,17	189	214	229	437	252	241
1909 . . .	10,32	32,65	20,27	20,49	73,41	83,73	200	244	238	550	287	272
AVERAGE 1905-09 .	**9,15**	**27,82**	**18,82**	**14,86**	**61,49**	**70,64**	**177**	**208**	**221**	**399**	**240**	**230**
1910 . .	10,67	32,34	24,31	25,66	82,31	92,99	207	242	285	689	322	302
1911 . . .	11,13	34,20	25,42	25,29	84,91	96,04	215	256	298	679	332	312
AVERAGE 1910-11 .	**10,90**	**33,27**	**24,87**	**25,48**	**83,61**	**94,52**	**211**	**249**	**292**	**684**	**327**	**307**

216. The private deposits available for commercial enterprise in the Presidency and joint-stock Banks, including Exchange Banks, increased from an average of about twenty-six crores in the five years 1890—94 to an average of sixty-one crores in the five years 1905—09, and now stand at about ninety crores. During the last ten years the increase has been unusually rapid. The deposits amounted to thirty-one crores in 1900 and rose to fifty-one crores in 1905, seventy-three crores in 1909, eighty-two crores in 1910 and eighty-five crores in 1911. In the five years ending with 1904 the annual growth as compared with the previous quinquennium was about nine per cent. In the next five years the annual growth was more than ten per cent. and in 1910-1911 the annual growth has been much larger.

Influence of credit on prices.

217. Credit is given usually in the form of bankers' advances. A considerable part of the deposits in banks is advanced to merchants usually, but not always, on securities. A successful merchant has no difficulty in

obtaining loans, provided that the operation, for which he requires the money, is a sound one. In times of great trade activity, a great deal of the money with bankers is placed at the disposal of business men and this creates a demand for commodities generally, and prices rise. During the upward general trend of prices, money is lent freely, and credit is at its maximum efficiency and exercises great influence on prices. In addition to bankers advances, there is another form of credit, namely, bill discounting. In the discounting of bills credit is often given on the security of articles of definite value such as bales of jute, gunnies, cotton or other goods. The owner of these goods draws a bill on the buyer or consignee and the latter meets it within the definite period named on the bill. The drawer of the bill obtains the money at once by getting it discounted by his banker. These bills thus allow the owner to recover the value of his goods immediately he is able to sell or consign them to another. The person who discounts the bill may, again, use it as a security for a temporary increase of his credit. Thus, the volume of the credit and the rapidity of its circulation is considerably increased.

Cheques.

218. When cheques pass through several hands, before being presented to the bank on which they are drawn, they become instruments of credit, taking the place of coins and notes in the locality where they circulate. In India, in recent years, cheques are made to do a great deal of work as an aid to the rupee and note circulation, and when they are finally cleared they are covered with the endorsements of persons and firms through whose hands they have passed. These cheques frequently remain in circulation for months before they are finally cleared and form an addition to the circulating medium of the place. The following statement of the amount of cheques cleared at the Clearing Houses in Calcutta, Bombay and Madras shows that the total amount of these cheques cleared in 1912 was 3·53 times of the average of the five years, 1890-94. Similar statistics are available for Karachi only from 1901, and in eleven years the amount of cheques, cleared in that city, has increased from 179 lakhs to eleven crores sixty lakhs, *i.e.*, it has increased 548 per cent :—

Statement showing the amounts of cheques cleared at the Clearing Houses in Calcutta, Bombay, Madras and Karachi.

[In lakhs of rupees.

Years.	CALCUTTA.		BOMBAY.		MADRAS.		KARACHI.		TOTAL—CALCUTTA, BOMBAY AND MADRAS.	
	Amount.	Index No.	Amount.	Index No.	Amount.	Index No.	Amount.	Index No.	Amount.	Index No.
1890 .	63,33	79	61,31	111	13,11	121	..	..	137,75	94
1891 .	77,59	97	57,85	104	11,06	102	..	..	146,50	100
1892 .	84,13	105	48,54	87	11,14	103	..	..	143,81	98
1893 .	83,48	104	53,85	97	8,75	81	..	..	146,08	100
1894 .	92,29	115	55,99	101	10,06	93	..	..	158,34	108
1895 .	102,28	128	61,64	111	11,87	110	..	..	175,79	120
1896 .	101,80	127	69,40	125	10,03	93	..	..	181,23	124
1897 .	116,90	146	62,63	113	11,20	104	..	..	190,73	130
1898 .	105,36	131	59,74	108	11,15	103	..	..	176,25	120
1899 .	125,37	156	65,57	118	11,61	107	..	..	202,55	138
1900 .	139,61	174	60,70	109	12,04	111	..	..	212,35	145
1901 .	132,83	166	65,11	117	13,55	125	1,79	100	211,49	144
1902 .	146,31	183	70,13	126	13,05	121	2,68	150	229,49	157
1903 .	141,74	177	87,63	158	14,54	134	3,40	190	243.91	166
1904 .	140,67	175	94,93	171	15,47	143	3,66	204	251,07	171
1905 .	175,27	219	109,27	197	15,91	147	3,25	182	300,45	205
1906 .	206,42	257	109,12	197	15.94	147	4.01	224	331.48	226
1907 .	224,44	280	126,45	228	15.49	143	5,31	297	366,38	250
1908 .	212,81	265	125,85	227	17,54	162	6.41	369	356,20	243
1909 .	197,76	247	143,76	259	19,48	180	7,02	392	361,00	246
1910 .	222,38	277	166,53	300	21,17	196	7,55	422	410,03	280
1911 .	257,63	321	176,05	317	20,83	193	7,63	426	454,51	310
1912 .	288,31	360	206,94	373	21,53	199	11,60	648	516,78	353

Development of the English system of banking in India.

219. During the last ten years the English system of banking has been developing in all the provinces in India and has been very largely supplementing the operations of the *Banias* and *Marwaris*, who combine trade freely with money-lending and finance. It is impossible to collect any statistics of the operations of these men, but there is no doubt that their operations also have been growing *pari passu* with the growth of the English system of banking in India and that the latter has not displaced the former to any extent. The *Chetties* of Southern India, the *Bhatias* and *Parsees* of Bombay and Gujarat and the *Marwaris* and *Hindustanis* of Northern India are as flourishing to-day, if not more, as they were before, and still to-day there are 347 offices of joint-stock banks in 140 cities throughout India. The towns where these offices are largely established are the following :—

Lahore .	. 20	Bank Offices	including	6	Head Offices.
Calcutta .	. 18	,,	,,	4	,,
Bombay .	. 13	,,	,,	4	,,
Delhi .	. 11	,,	,,	1	,,
Amritsar .	. 9	,,	,,	3	,,
Karachi .	. 9	,,	,,	0	,,
Lucknow .	. 9	,,	,,	1	,,
Cawnpore	. 8	,,	,,	0	,,
Rangoon .	. 8	,,	,,	2	,,
Madras .	. 6	,,	,,	2	,,

220. The money-lenders themselves, it may be noted, are now making use of joint-stock Banks for deposit and remittance. This joint-stock banking system collects and distributes a large sum of money throughout the whole of India.

INCREASE IN THE CIRCULATING MEDIUM.

The quantity of money and prices.

221. Prices are but the value of goods measured in money, and must be considered to be governed by the general law of value, unless some reason for an exception in this case be shown, which, however, has never been done. The quantitative theory of money lays down that, under the simplest conditions and other things being equal, an increase in the quantity of money raises prices and a diminution lowers them. While there are some very staunch supporters of the theory, there are others who have cavilled at and even rejected it, but none of them has yet seriously undertaken to show what determines the value of money, *i.e.*, price, if the supply and demand do not. The opponents of the "Quantitative Theory of Money" have, it seems, been misled by not always remembering the many limitations of this theory, for example, (1) the complexity and elusiveness of the elements involved, and (2) the importance of the proviso which must be attached to every statement of this doctrine, *viz.*, 'all other things being equal.' There is yet another party who hold that each of the two phenomena—rise or fall in prices and increase and decrease in the quantity of money—is likely to accompany the other, but they do not tell us *why* prices have gone up or *why* it has been necessary to increase the volume of the currency ; in short, they hold that these two observed facts are only different phases of the same monetary phenomenon.

222. The quantitative theory of the value of money is true only under the simplest conditions and considerable qualification and elaboration are necessary before the bold statement—'that an increase of the quantity of money raises prices and a diminution lowers them, is a most elementary proposition in the value of currency, and without it we should have no key to any of the others '*—can be made to fit the complicated phenomena of modern times. It is well-known that the money supply of Europe was increased by 500 per cent. during the first two generations of the discovery of America. Prices are, however, not generally considered to have increased more than 200 per cent. The new supplies of silver from Mexico and Peru were eagerly taken up by the countries of Europe which had been starving

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* Mill's Principles—BK. III.—Ch. VIII.

for long owing to the continued silver famine in the middle ages. Speculation and enterprise arose in every land, new industries were created, and old and traditional industries were rapidly increased. A similar effect indeed was produced by the Californian and Australian discoveries, when the increased commercial and industrial activities and enterprise, themselves the result of the increased supply of new gold, added to the demand for money and prevented prices from rising proportionately to the increased supply. In short, we see the necessity of the provisos, 'other things being equal,' and 'under the simplest conditions.' Mill himself was careful to point out that the proposition is only true of "a simple and primitive state of things," and it must be received with many qualifications "which under a complex system of credit like that existing in England renders the proposition an extremely incorrect expression of the fact."

Influence of Credit.

223. In order to isolate the influence of the quantity of money and to bring out clearly the central truth of the theory and the modifications that are required to make it hold good in modern industrial society, a 'hypothetical market' would have to be constructed where (*i*) credit and barter are excluded, *i.e.*, no exchanges of commodities are to be permitted unless money passes from hand to hand at every transaction, and (*ii*) money must be regarded solely as an instrument of exchange, and not used for hoarding or for industrial purposes (such as manufacturing jewellery), *i.e.*, money must be convertible or used exclusively as an instrument of exchange. This 'hypothetical market' is, in fact, the reverse of the market of to-day. A purchase made on credit has the same immediate effect on prices as the purchase made with cash. If a certain number of people purchase goods and offer money and there is an equal number, whose credit is good, purchasing on credit, the effect on the seller is the same as if the entire number had offered money. The extension of credit may, however, cause not merely the postponement of the use of money, but it may bring into action a train of causes enabling money to be dispensed with. If, for instance, a merchant of high standing buys goods, and gives his promissory note in payment, the transaction *per se* merely puts off the use of money until the maturity of the note. Conceivably, however, the holder of the note may turn it over, with his endorsement, to another person, in payment of goods. If that other person accepts it, the use of money in the second transaction is entirely obviated: yet the effect on prices is precisely the same as if so much money had actually passed.

The rapidity of circulation.

224. In addition to credit the other modifying influences must not be forgotten. There is, for example, the effect of the rapidity of the circulation of money and credit. In the recent Report of the Mackenzie Commission on the Cost of Living in New Zealand, the increase in the velocity of money circulation has been given a prime place as a cause of the rise of prices. The effect on the general prices is the same when, in effecting a certain amount of transactions, one piece of money is used ten times as when ten pieces are used once.

Barter.

225. Barter too must not be forgotten. It may be pointed out that if some things are exchanged by means of barter instead of by money, there is so much money left over to be given for the smaller amount of commodities, and in this way barter would, although indirectly, tend to raise prices.

The second limitation—use of gold for hoarding and for arts.

226. The importance of the second limitation in discussing the 'hypothetical market,' *viz.*, that there must be no hoarding and no demand of the money material for industrial purposes, or, in other words, that money must be regarded solely as an instrument of exchange, must be borne in mind. The demand for gold for industrial purposes affects the supply available for money. There are also demands for gold for military chests, and for public and private hoards. When there is a general rise of prices, the quantity of gold demanded for the arts tends to

increase, and, as in recent years, with the great gold discoveries in South Africa, there has been a counteracting influence on prices by the increased demands for gold for industrial consumption.

227. To sum up: when all these factors have been allowed for, prices are determined by the relation between the volume of the purchasing medium in terms of money and the quantity of goods. The volume of the purchasing medium is, however, by no means the same as the volume of specie or what is generally called money. This purchasing power includes not only specie, but bank (or currency) notes and credit as well.

Redundancy of rupees as a cause of the rise of prices.

Automacy of the Indian Currency system.

228. Many writers on the rise of prices in India have held that prices have gone up in India, in consequence of an increase in the circulation of rupees, facilitated by the heavy coinage of rupees by Government in the last decade. The Indian currency system of to-day is, however, quite as automatic as it was previous to the closing of the Mints to the free coinage of silver. Before the closing of the Mints, silver used to be imported to adjust the balance of trade and if there was a demand for more rupees, the silver was presented at the Mint and rupees obtained; if, however, the number of rupees were more than was required for trade purposes they could be exported as bullion, there being no large difference between the bullion and the face value of the rupees. Now that the Mints have been closed to free coinage, the export of rupees to other countries, where th Government of India rupees are not current, and where they can be exchanged only for their bullion value, has necessarily disappeared, and the balance of India's trade can be made good only by the importation of gold or of Council bills in excess of the Secretary of State's requirements; and if trade requires more currency, Government have to supply rupees either in payment of the extra Council Bills or in exchange for the gold imported. While, on the other hand, if the balance of trade is reversed, the necessary adjustment can be made only by a remittance from India. Government have now tacitly undertaken the obligation to facilitate such remittances either by supplying gold from the reserves in this country or by selling bills on London in lieu of rupees received here. Thus remittances can be made from India to the other countries in adjustment of the trade balance as freely as before, and when such remittances are made on a large scale the inevitable effect will be a contraction of the circulation of rupees.

Coinage of Rupees only compulsorily undertaken.

229. Rupees, when required by the trade, are ordinarily supplied, in lieu of gold or Council bills, from the currency reserve or the silver branch of the Gold Standard Reserve. When the amount of rupees in the silver portion of the Paper Currency Reserve falls to the margin of safety, the Government of India recognise that the time is drawing near for the coinage of new rupees. And when the percentage of the rupee reserve in the Currency to the total circulation becomes very low, coinage is compulsorily undertaken by Government. This will be evident from the following statement showing the total circulation of currency notes, the rupee reserve held against them, the percentage of the rupee reserve to the total circulation and the net coinage of the several years. In 1899-1900, the percentage of the reserve to the total circulation of currency notes was only 18·7; in 1902-03, 30·6; in 1903-04, 30; in 1904-05, 28·7; in 1905-06, 30·4; in 1906-07, 29·2; and in 1911-12, when coinage was again resumed, the percentage went down to 25·1. Thus it is clear that whenever the Government of India coined new rupees they were forced to do so by the depletion of their reserves due to the demands of trade. It is impossible to force an additional coinage into circulation even if the Government of India undertook to coin when the trade demands for more rupees were non-existent.

Statement showing the total circulation of currency notes, the rupee reserve held against them, the percentage of the rupee reserve to the total circulation and the net coinage of the year.

Year.	Total circulation of currency notes (in lakhs of rupees).	Currency Rupee Reserve (in lakhs of rupees).	Percentage of Rupee Reserve to total circulation.	Net Rupee coinage (in lakhs of rupees). (*a*)	Year.	Total circulation of currency notes (in lakhs of rupees).	Currency Rupee Reserve (in lakhs of rupees).	Percentage of Rupee Reserve to total circulation.	Net Rupee coinage (in lakhs of rupees).
1894-95	30,70	22,70	73·9	—6	1903-04	38,21	11,50	30·0	10,79
1895-96	25,94	17,97	69·3	—29	1904-05	39,18	11,36	28·7	7,32
1896-97	23,75	13,75	57·9	—64	1905-06	44,66	13,58	30·4	16,48
1897-98	24,76	14,51	58·6	—12	1906-07	46,95	13,72	29·2	23,16
1898-99	28,20	15,15	53·7	9	1907-08	46,89	25,28	53·9*	14,91
1899-1900	28,74	5,38	18·7	40	1908-09	45,49	31,14	68·4*	—10
1900-01	29,87	9,42	31·5	16,81	1909-10	54,41	29,33	53·9*	1
1901-02	31,66	11,13	35·2	3,64	1910-11	54,99	26,06	47·4*	—47
1902-03	35,72	10,93	30·6	3,13	1911-12	61,36	15,40	25·1*	—6

(*a*) Minus figures represent excess of withdrawals over new coinage.

* Taking the rupees held in the Gold Standard Reserve into account, the percentages would be—

1907-08—66·7 1909-10—61·6
1908-09—103·4 1910-11—52·8
1911-12—29·9.

Average coinage after the closing of the mints not larger than before.

230. The next table showing the yearly and average net coinages of silver, before and after the closing of the Mints, brings out clearly that in spite of the heavy coinages of recent years, the average net coinage during the eighteen years subsequent to the closing of the Mints was Rs. 5,66,00,000 and in the previous eighteen years Rs. 7,51,00,000. Thus, the average annual coinage during the eighteen years that have elapsed since the closing of the Mints has been much less than in the corresponding period preceding that date. In the decade immediately preceding the closing of the Mints, the average net coinage was Rs. 8,08,00,000 and in the decade following Rs. 3,72,00 000. This was due to a deliberate restriction of coinage to force up exchange. The average net coinage during the eight years ending 1911-12 was Rs. 8,08,00,000 or the same as in the decade ending 1893-94, but if the coinage of the years 1912-13 be taken into account the average would be somewhat more. The coinage has in certain years been exceptionally great. Thus, in 1877-78, there was a net coinage of Rs. 16,11,00,000; in 1887-88, Rs. 10,32,00,000; in 1890-91, Rs. 13,07,00,000 and in 1892-93, Rs. 12,51,00,000. Since 1893, the years of heavy coinage were 1900-01 (Rs. 16,81,00,000), 1903-04 (Rs. 10,79,00,000), 1905-06 (Rs. 16,48,00,000), 1906-07 (Rs. 23,16,00,000), and 1907-08 (Rs. 14,91,00,000). In the latter period, *i.e.*, after 1893, the comparatively heavy coinages in some of the years have been counterbalanced by little or no coinage in some others, *e.g.*, 1894-95 to 1899-1900 and 1908-09 to 1911-12, but this redeeming feature is absent in the earlier period.

Statement showing the yearly and average net coinage of silver in India, before and after the closing of the Mints.

[In lakhs of Rupees.

Years.	Net coinage of silver.	Decennial averages.	Eighteen yearly averages.	Years.	Net coinage of silver.	Decennial averages.	Eighteen yearly averages.
1874-75 . .	4,84	6,17		1894-95 . .	3	3,72	5,66
1875-76 . .	2,52			1895-96 . .	..		
1876-77 . .	6,25		7,51	1896-97 . .	—7		
1877-78 . .	16,11			1897-98 . .	38		
1878-79 . .	7,14			1898-99 . .	37		
1879-80 . .	10,19			1899-00 . .	1,32		
1880-81 . .	4,09			1900-01 . .	16,93		
1881-82 . .	1,55			1901-02 . .	3,82		
1882-83 . .	5,81			1902-03 . .	3,25		
1883-84 . .	3,15			1903-04 . .	11,15	8,08	
1884-85 . .	5,54	8,08		1904-05 . .	7,81		
1885-86 . .	9,83			1905-06 . .	16,88		
1886-87 . .	4,56			1906-07 . .	23,38		
1887-88 . .	10,32			1907-08 . .	15,70		
1888-89 . .	6,80			1908-09 . .	24		
1889-90 . .	8,24			1909-10 . .	11		
1890-91 . .	13,07			1910-11 . .	20		
1891-92 . .	5,36			1911-12 . .	30		
1892-93 . .	12,51						
1893-94 . .	4,61						

Wastage of rupees—another factor.

231. Another factor has to be borne in mind in this connection. In spite of increased exports of British India rupees to East Africa and other places where they pass current, the total amount of wastage of rupees, due to melting, hoarding, exporting and other reasons, has in the recent period been much less—being in fact less than one-half—than the amount in the period prior to the closing of the Mints, as will be seen from the following statements. This can be explained by the fact that rupees are no longer used for industrial purposes, as the value of the bullion contained in them is only a fraction of their nominal value, and also because gold is now being hoarded in preference to silver. There are no indications of any appreciable change in the inveterate habit of the great majority of the people of hoarding their savings. This is clear from the fact brought out in the second of the following statements that in every year of famine or scarcity, not only has there been no diminution of the currency in circulation due to the usual wastage, but that there has also been an actual addition evidently from hoards, thus in 1892 there was an addition of 2 crores, in 1897 of one crore, in 1901 of 9 crores, in 1907 of 3 crores and in 1908 of 6 crores.

Exports and Imports of Government of India Rupees.

Year.	Exports.	Imports.	Net exports.	Year.	Exports.	Imports.	Net exports.
1894-95 .	136,97,614	83,66,522	53,31,092	1903-04 .	142,02,089	83,09,392	58,92,697
1895-96 .	109,58,500	74,36,006	35,22,494	1904-05 .	122,83,145	62,18,732	60,64,413
1896-97 .	161,46,210	102,01,387	59,44,823	1905-06 .	110,81,420	32,58,093	78,23,327
1897-98 .	153,79,874	110,48,263	43,31,611	1906-07 .	199,92,165	72,14,271	127,77,894
1898-99 .	201,73,770	47,58,003	154,15,767	1907-08 .	162,35,680	120,83,930	41,51,750
1899-00 .	143,20,671	46,05,444	97,15,227	1908-09 .	117,50,767	88,51,093	28,99,674
1900-01 .	140,20,285	52,43,615	87,76,670	1909-10 .	183,85,706	44,45,256	139,40,450
1901-02 .	123,05,578	87,98,295	35,07,283	1910-11 .	214,90,960	42,43,662	172,47,298
1902-03 .	115,75,228	50,64,362	65,10,866	1911-12 .	152,62,890	39,12,885	113,50,005

Statement showing the average amount of rupees melted, hoarded, exported or otherwise wasted.

[In crores of Rupees.

—	Estimated stock of rupees in circulation and currency and Gold Standard Reserves.	Increase + Decrease—	Net coinage of the year. (*a*)	Amount melted, hoarded, exported or otherwise wasted.	Average amount melted, hoarded, exported or otherwise wasted.
1884	109	..	..	..	5
1885	113	4	9	5	
1886	111	— 2	5	7	
1887	111	..	8	8	
1888	112	1	7	6	
1889	117	5	7	2	
1890	120	3	12	9	
1891	126	6	6	..	
1892	138	12	10	— 2	
1893	136	— 2	8	10	
1894	130	— 6	..	6	2·5
1895	128	— 2	..	2	
1896	120	— 8	— 1	7	
1897	120	..	— 1	— 1	
1898	115	— 5	..	6	
1899	112	— 3	— 1	2	
1900	120	8	9	1	
1901	137	17	8	— 9	
1902	127	—10	— 2	8	
1903	129	2	5	3	2·25
1904	132	3	12	9	
1905	142	10	10	..	
1906	160	18	24	6	
1907	186	26	23	— 3	
1908	192	6	..	— 6	
1909	190	— 2	..	2	
1910	186	— 4	..	4	
1911	180	— 6	— 1	5	
1912	185	5	..	..	

(*a*) In calculating the net coinage, withdrawals in official years have been taken into account.

232. Thus, although the coinage in the last eighteen years has been less than that in the corresponding period before the closing of the Mints, the actual average addition to the currency has been more, as allowance should be made for the decrease in the amounts melted and hoarded.

Total amount of rupees and currency notes in circulation.

233. The following statement shows the stock of rupees in circulation (the method of calculating which has been described in Appendix M), the circulation of currency notes and the amount of rupees and currency notes in *actual* circulation. The circulation of sovereigns has not been taken into account as it has not been possible to estimate it. But whatever may be the amount of sovereigns in circulation, it is not likely to be appreciable in comparison with that of rupees and currency notes, and the omission would not affect the figures seriously. The circulation of notes of the denomination of Rs. 10,000 has also been excluded, as these high denomination notes do not really circulate but are used as a convenient means of locking up money for future use; moreover, the bulk of these notes is held by Government Reserve Treasuries and as such do not play any important part in the ordinary transactions of the country. This statement shows that the circulating medium apart from credit has increased 60 per cent. in volume since the period 1890—94.

Statement showing the total amount of currency in circulation (including Currency Notes).

	Total estimated stock of rupees in circulation and in Currency and Gold Standard Reserves (in crores of rupees).	Add circulation of Currency Notes* (in crores of rupees).	Deduct Rupees held in the Currency Reserve* (in crores of rupees).	Deduct Rupees held in the Gold Standard Reserve* (in crores of rupees).	Deduct circulation of Rs. 10,000 Notes * (in crores of rupees).	Actual circulation of rupees and Currency Notes (in crores of rupees).	Index Numbers. Average of 1890 1894 = 100.
1884 . .	109	15	7	..	2	115	88
1885 . .	113	14	7	..	2	118	90
1886 . .	111	14	7	..	1	117	90
1887 . .	111	16	9	..	2	116	89
1888 . .	112	16	8	..	2	118	90
1889 . .	117	16	8	..	2	123	94
1890 . .	120	26	18	..	8	120	92
1891 . .	126	24	14	..	5	131	100
1892 . .	138	26	18	..	5	141	108
1893 . .	136	30	22	..	12	132	101
1894 . .	130	31	23	..	9	129	99
1895 . .	128	26	18	..	4	132	101
1896 . .	120	24	14	..	3	127	97
1897 . .	120	25	15	..	5	125	96
1898 . .	115	28	15	..	6	122	93
1899 . .	112	29	5	..	5	131	100
1900 . .	120	30	9	..	7	134	103
1901 . .	137	32	11	..	8	150	115
1902 . .	127	36	11	..	9	143	109
1903 . .	129	38	12	..	8	147	113
1904 . .	132	39	11	..	8	152	116
1905 . .	142	45	14	..	9	164	126
1906 . .	160	47	14	..	8	185	142
1907 . .	186	47	25	6	12	190	145
1908 . .	192	45	31	16	9	181	139
1909 . .	190	54	29	4	13	198	152
1910 . .	186	55	26	3	13	199	152
1911 . .	180	61	15	3	14	209	160
1912 . .	185	69	16	6	18	214	164

* On the last day of March of the next year.

Increase in circulating medium not more than the increase in business.

234. This increase in the volume of metallic currency does not, however, appear to have been larger than what has been required by the growth of business and other demands for currency. The following table shows the growth of business in India between 1890—1911. It includes only a few items such as external and internal trade, railway traffic, post office and treasury transactions, the capital of Joint Stock Companies, the consumption of rice, wheat and coal, and the production of jute and cotton. In 1911, business had grown by over 120 per cent. (the standard period being 1890—1894). It will be seen that this growth was especially marked from 1904, the general index numbers being as follows: 1890—1894, 100; 1895, 110; 1900, 128; 1903, 148; 1904, 160; 1906, 179; 1909, 193; 1910, 202; and in 1911, 222. In the absence, therefore, of any marked increase in the rapidity of the circulation of currency and credit—and we have had no evidence of any remarkable change in the rate during the last two decades—the demands of business would necessitate a corresponding increase in the volume of currency and credit. But, as explained above, the volume of rupees and currency notes in actual circulation has increased only 60 per cent. as compared with the 120 per cent. increase in the growth of business. Moreover, barter has been giving place to payment in cash, especially in regard to the payment of wages, and this also has undoubtedly increased the demand for currency in the interior. Another factor, of which we got conclusive proofs in our tours in the various parts of India, is that currency in all its forms now remains in inland districts when it has done its special work of moving harvests or relieving famines, because it is required locally afterwards. The life of the individual ryot or groups of ryots is not so self-contained now as formerly; rents as well as wages are now paid in money rather than in kind, railways, rather than the ryots' own carts, are carrying the produce and all of these require a larger amount of currency than before.

Statement showing the growth of business in India.

Years.	Imports and Exports of merchandise and Treasure excluding Government Stores. 1		Tonnage entered and cleared with cargo. 2		Imports and Exports, Coasting Trade. 3		Imports and Exports, Inland Trade. 4		Passengers carried by Railways. 5		Freight carried by Railways. 6		Treasury and Presidency Port Trust and Municipal transactions (excluding remittances). 7	
	In lakhs of rupees.	Index numbers.	In thousands of tons.	Index numbers.	In lakhs of rupees.	Index numbers.	In millions of maunds.	Index numbers.	Passenger mileage in millions.	Index numbers.	Ton mileage in millions.	Index numbers.	In lakhs of rupees.	Index numbers.
1890 . .	193,16	99	6,635	97	65,59	97	524	92	4,789	89	3,509	82	254,63	98
1891 . .	192,49	98	7,153	104	67.90	100	588	104	5,226	98	4,439	103	260,21	100
1892 . .	193,07	99	6,593	96	66,10	98	544	96	5,265	98	4,234	99	267,39	103
1893 . .	202,86	104	6,763	98	68,44	101	573	101	5,602	105	4,426	103	258,29	100
1894 . .	196,70	100	7,215	105	70,32	104	606	107	5,890	110	4,859	113	255,32	99
1895 . .	201,18	103	7,200	105	74,61	110	625	110	6,184	116	4,941	115	265,89	103
1896 . .	193,71	99	6,712	98	68,20	101	605	107	6,441	120	4,588	107	270,99	105
1897 . .	194,42	99	6,706	98	75,82	112	657	116	5,924	111	4,796	112	287,05	111
1898 . .	206,39	105	7,709	112	68,71	101	727	128	5,826	109	5,712	133	287,32	111
1899 . .	208,60	107	7,438	108	80,94	120	815	144	6,191	116	6,164	144	310,24	120
1900 . .	207,58	106	7,072	103	83,52	123	806	142	7,068	132	6,650	155	338,98	131
1901 . .	234,09	120	8,350	122	79,49	117	860	152	7,872	147	7,066	165	329,78	127
1902 . .	241,68	124	9,360	136	72,91	108	805	142	7,872	147	7,178	167	354,11	137
1903 . .	277,88	142	10,670	155	72,50	107	903	159	8,388	157	7,632	178	371,05	143
1904 . .	295.20	151	11,492	167	78,81	116	1,104	195	9,007	168	8,972	209	374,22	144
1905 . .	292,18	149	10,573	154	84,25	124	1,137	201	9,900	185	9,041	211	396,26	153
1906 . .	318.14	163	11,801	172	96,31	142	1,164	205	10,688	200	9,771	228	421,99	163
1907 . .	345,53	177	12,388	180	109,01	161	1,229	217	11,841	221	10,811	252	405,89	157
1908 . .	302.89	155	11,594	169	106,62	157	1,137	201	12,103	226	9,926	231	420,08.	162
1909 . .	348.77	178	12,491	182	106,56	157	1,236	218	12,365	231	9,340	218	428,53	165
1910 . .	386.26	197	12,755	186	104,94	155	1,329	234	13,432	251	12,093	282	437,14	169
1911 . .	430.19	220	13,847	201	109,25	161	..	..	14,373	268	13,358	311	456,03	176

Years.	Post office transactions receipts and payments. 8		Capital of Joint stock Companies registered in India. 9		Consumption of rice. 10		Consumption of wheat. 11		Production of jute. 12		Production of cotton. 13		Consumption of coal. 14		General index number of growth of business. 15	Population. 16	
	In lakhs of rupees.	Index numbers.	In lakhs of rupees.	Index numbers.	In lakhs of maunds.	Index numbers.	In lakhs of maunds.	Index numbers.	In lakhs of maunds.	Index numbers.	In lakhs of maunds.	Index numbers.	In thousands of tons.	Index numbers.		In millions.	Index numbers.
1890 . .	40,77	90	24,25	93	67,03	92	..	..	3,22	118	1,03	119	2,927	92	97	212·7	100
1891 . .	42,75	94	26,35	101	55,26	76	17,96	98	2,03	75	71	82	3,060	97	95	213·0	100
1892 . .	45,14	99	26,46	101	74,67	102	16,20	89	2,92	107	80	92	3,170	100	98	213·4	100
1893 . .	48,04	106	26,65	102	81,99	112	19,28	105	2,47	90	99	114	3,065	97	103	213·8	100
1894 . .	50,54	111	27,06	103	87,18	118	20,58	113	3,00	110	80	93	3,594	114	107	214·4	100
1895 . .	53,63	118	28,87	110	73.08	100	17,36	95	3,20	118	98	113	4,221	130	110	215·0	101
1896 . .	58,57	129	30,35	116	49,74	68	15,62	85	2,70	99	81	93	4,221	130	104	215·7	101
1897 . .	63,96	141	32,09	123	88,16	119	14,96	82	3,35	123	91	105	4.115	130	113	216·5	101
1898 . .	62,56	137	34,60	132	90,60	124	18,77	103	2,66	98	1,09	125	4,640	147	117	217·3	102
1899 . .	65,49	144	34,46	132	72,37	99	20,07	110	2,79	102	55	63	5,211	165	120	218·2	102
1900 . .	67,93	149	36,09	138	75,76	104	16,81	88	3,34	112	1,10	127	5,764	182	128	219·1	103
1901 . .	70,84	156	37,22	142	62,20	95	19,22	105	3,85	141	1,04	120	6,239	197	136	220·1	103
1902 . .	73,05	161	37,91	145	81,10	111	16,67	91	3,28	120	1,26	145	7,213	228	140	221·1	103
1903 . .	77,22	170	38,57	147	77,11	105	18,40	101	3,97	146	1,23	142	7,160	226	148	221·9	104
1904 . .	81,88	180	40,17	154	76,35	104	19.84	109	3,80	140	1,41	163	7,868	249	160	222·6	104
1905 . .	87,00	192	41,63	159	74,07	101	18,53	101	4,31	158	1,24	143	7,832	248	163	223·2	104
1906 . .	92,93	204	44,05	168	75.86	104	20,33	111	4,74	174	1,61	186	9,006	285	179	223·8	105
1907 . .	99,92	220	50,40	193	61,10	83	19,72	108	5,32	195	1,09	126	10,791	341	188	225·1	105
1908 . .	101,94	224	56,72	217	69.39	95	14,30	78	3,26	119	1,34	155	12,494	395	185	225·6	106
1909 . .	103,75	228	61,18	234	85,23	116	15,89	87	3,37	124	1,69	185	11,797	373	193	227·3	106
1910 . .	108,29	238	63,73	244	82.18	112	19,46	106	3,62	133	1,42	164	11,375	360	202	229·0	107
1911 . .	118,46	261	69,02	264	78,19	107	19,66	108	4,23	155	1,22	141	12,172	385	222	230·6	108

No indication of redundancy of rupees for any length of time during the period under enquiry.

235. Throughout the period under enquiry, there were also no signs of a redundancy of rupees for any length of time, as it would have led to the export of gold in the form of currency or bullion and to a continued fall in exchange. The statement below shows the imports and exports (less the quantity of gold produced in India) of gold and the rates of exchange. It will appear that since the stability of the gold value of the rupee was established, exchange fell below the fixed ratio of 16*d.* per rupee only in the year 1908-09, and there were signs of redundancy of rupees for a part of that year, when the export trade was stagnant and there was a financial crisis in America, but the Government of India were, by selling bills on London, able to immediately arrest the downward course of the exchange, and the imports of gold more than recovered in the next year. Except, therefore, for only a portion of a year, there have been no indications of a redundancy of coinage in India.

Imports and Exports of Gold into and from India, in quantity.

—	IMPORTS (IN THOUSANDS OF TOLAS).			EXPORTS, LESS GOLD PRODUCED IN THE COUNTRY (IN THOUSANDS OF TOLAS).			Rate of exchange in pence per rupee.
	Sovereigns.	Other coins and bullion.	Total.	Sovereigns.	Other coins and bullion.	Total.	
1889-90	..	..	22,67	..	..	2,05*	16·566
1890-91	..	..	31,36	..	..	1,44	18·089
1891-92	..	..	18,91	..	..	4,08	16·733
1892-93	..	..	7,27	..	..	14,99	14·984
1893-94	..	..	12,66	..	..	4,55	14·546
AVERAGE	..	..	**18,57**	..	..	**5,42**	..
1894-95	..	..	6,32	..	..	19,09	13·100
1895-96	..	..	18,53	..	..	3,05	13·638
1896-97	..	..	17,53	..	..	63	14·450
1897-98	..	..	30,11	..	..	15	15·354
1898-99	..	..	38,20	..	..	—25	15·978
AVERAGE	..	..	**22,14**	..	..	**4,53**	..
1899-00	..	..	51,04	..	..	—2,75	16·067
1900-01	30,75	22,26	53,01	4,55	31,92	36,47	15·973
1901-02	24,09	12,50	36,59	12,07	3,01	15,08	15·987
1902-03	39,81	18,52	58,33	5,25	1,49	6,74	16·002
1903-04	59,29	29,52	88,81	29,85	1,10	30,95	16·049
AVERAGE	..	..	**57,56**	..	..	**17,30**	**16·016**
1904-05	59,52	36,61	96,13	39,16	1	39,17	16·045
1905-06	27,36	36,55	63,91	48,67	15	48,82	16·042
1906-07	36,76	43,75	80,51	2,81	—1,21	1,60	16·087
1907-08	45,98	44,16	90,14	8	1,02	1,10	16·029
1908-09	7,39	28,19	35,58	3,11	65	3,76	15·964
AVERAGE	**34,00**	**37,85**	**73,25**	**18,77**	**12**	**18,89**	**16·033**
1909-10	63,29	45,92	1,09,21	19	22	41	16·041
1910-11	57,47	63,25	1,20,72	2,56	40	2,96	16·061
1911-12	1,24,72	58,52	1,83,24	77	93	1,70	16·084
AVERAGE	**81,83**	**55,90**	**1,37,72**	**1,17**	**52**	**1,69**	**16·036**

* Includes gold produced in the country.

Rupee coinage had no important influence on prices.

236. In short, the growth of the volume of currency (including notes) has not been incommensurate with the growth of business and other demands for currency, and in the absence of any indications of a redundancy of rupees for any length of time, it is clear that the rupee coinage of the Government of India could not have exercised any important influence on the level of prices.

Growth of credit—its considerable influence on prices.

237. The same, however, cannot be said of credit. It has been already explained that credit has developed considerably in this country. Although it is not possible to gauge the extent of this development with any very great accuracy, the growth in the capital of Banks, their private deposits, and the Clearing House returns would be some sort of a rough guide. The table below shows that this growth has been in 1911, 186 per cent., a proportion much larger than the growth of business, and has, as already explained, contributed to a certain extent to the rise in prices in India.

Statement showing the Development of Credit in India.

—	Capital and reserve of Banks in India (in lakhs of rupees).	Private deposit in Banks in India (in lakhs of rupees).	Clearing House returns, Calcutta, Bombay and Madras (in lakhs of rupees).	INDEX NUMBERS.			
				Capital.	Deposits.	Clearing House returns.	Total.
1890	4,99	25,01	1,37,75	96	98	94	96
1891	5,05	26,22	1,46,50	98	102	100	100
1892	5,12	25,07	1,43,81	99	98	98	98
1893	5,27	24,31	1,16,08	102	95	100	99
1894	5,43	27,39	1,58,34	105	107	108	107
AVERAGE .	**5.17**	**25.60**	**1,46,50**	**100**	**100**	**100**	**100**
1895	5,85	29.09	1,75.79	113	114	120	116
1896	6.09	28,45	1,81,23	118	111	124	118
1897	6,51	26,06	1,90,73	126	102	130	119
1898	6.89	27,16	1,76,25	133	106	120	120
1899	6,94	29,54	2,02,55	134	115	138	129
AVERAGE .	**6,46**	**28,06**	**1,85,31**	**125**	**110**	**126**	**120**
1900	6,87	31.46	2,12,35	133	123	145	134
1901	7,15	35,47	2,11,49	138	139	144	140
1902	7,31	41,80	2,29,49	141	163	157	154
1903	7,36	45,06	2,43,91	142	176	166	165
1904	7,55	49,80	2,51,07	146	195	171	171
AVERAGE .	**7,25**	**40,72**	**2,29,66**	**140**	**159**	**157**	**152**
1905	7,86	51,30	3,00,45	152	200	205	186
1906	8,30	57,09	3,31,48	161	223	226	203
1907	9,48	61,28	3,66.38	183	239	250	224
1908	9,78	64.39	3,56,20	189	252	243	228
1909	10,32	73,41	3,61,00	200	287	246	244
AVERAGE .	**9,15**	**61,49**	**3,43,10**	**177**	**240**	**234**	**217**
1910	10,67	82,31	4,10,08	207	322	280	270
1911	11,13	84,91	4,54,51	215	332	310	286
AVERAGE .	10,90	83,61	4,32,30	211	327	295	278

IMPORT OF CAPITAL AS A CAUSE.

The import of capital into India.

238. The import of capital has been suggested as a factor contributing to the rise of prices. It is held that some part of the new capital entered the country in the form of goods, and that the heavy demand for Council Bills also shows that a large part came in the form of what is, in reality, money. The great exporting firms found it necessary and remunerative to bring more capital into India from abroad. Mr. J. M. Keynes put forward the theory that "apart from the fluctuations of the seasons, the Indian level of prices is most influenced at the present time by the extent to which Europe makes her investments there."* It is understood that Mr. Keynes has recently modified his position to some extent, and while still believing that the influence has been appreciable, he is inclined to think that the influence of foreign investments has been exaggerated. We were unable in our tours to obtain any satisfactory evidence from merchants and bankers which would suggest any import of capital sufficiently great to influence the Indian price level to an appreciable extent and which would lead us to believe that the import of capital is a principal cause of the recent rise in the cost of living in India. It was not possible to obtain reliable statistics showing that any large amount of capital has been imported into India. It is true that the Exchange Banks have increased their capital considerably during the last two decades; but it is difficult to say how much of this capital actually came to India and how much went to other countries in which the Banks had agencies. In 1890, the total capital was £6,383,707; in 1895, £7,693,082; in 1900, £11,802,735; in 1903, £14,488,364: in 1905, £15,203,997: in 1907, £16,671,281; in 1909, £18,952,408; and in 1910, £21,384,557.

Import of capital into India as a cause of the rise of prices.

239. There are no data from which even an approximate estimate of the amount of foreign capital imported into India year by year could be made. The statement on page 447 of Vol. IV, Statistics, showing the balance of trade and the amount of Council bills, should give indications of an import of capital, if there were any. The figures in the last two columns tend, however, to cancel each other over a series of years, indicating that it is only the profits of earlier investments and the savings of Europeans working in India which have been reinvested, and that not much fresh capital has been imported during the period under enquiry. The general conclusions seem to be (1) that, judging at least from the incomplete data available and from the views of leading merchants and bankers of Bombay, Calcutta, Madras, Cawnpore, and elsewhere, the import of capital has not been of such magnitude during the period under enquiry as to influence Indian prices to any large extent, and (2) that the rise is to be attributed to other causes of greater importance than the import of capital

IMPOSITION OF AN EXPORT DUTY ON FOODGRAINS—WOULD IT REDUCE PRICES AND WOULD IT BE DESIRABLE.

Would the imposition of an export duty reduce prices and would it be desirable to impose it.

240. It was suggested by some witnesses that in times of very high prices an export duty should be levied on food-grains in order to lower the level of food prices in India. The following statement shows the outturn, exports and percentage of the latter to the former, for rice, wheat and other kinds of food-grains in British India, excluding Burma. Another statement is also appended, showing the exports and imports of the different kinds of food-grains. A study of these figures shows that the percentage of exports to the total production is ordinarily very small and that in years of famine, it dwindles to a still smaller figure indeed. Thus, in 1897-98 it was only ·86, in 1900-01, ·89 and in 1908-09, 1·01, while in exceptionally favourable years it does not rise much above 4 per cent. In 1891-92, it was only 3·7, in 1904-05, 4·5 and in 1911-12, 4·4. It was only in two years out of the long period from 1891-92 to 1911-12 that the food supply in

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* Recent Economic Events in India—J. M. Keynes—Economic Journal. March 1909, page 67.

India proper actually fell short of requirements, and had to be supplemented by importing more from outside than was exported out of the country. In most of the other years, except those which were especially favourable, the quantity exported was made good to an appreciable extent by imports from outside. This was probably the effect of the export of a considerable quantity of the finer kinds of foodgrains to the immense benefit of the producers, while the requirements of those, who could not afford the finer stuffs, were met in their interests by the importation of cheaper kinds of grain from Burma and other countries.

[In lakhs of maunds.

Years.	RICE.			WHEAT.			OTHER FOODGRAINS.			TOTAL.		
	Outturn.	Exports.	Percentage of exports to outturn.	Outturn.*	Exports.	Percentage of exports to outturn.	Outturn.	Exports.	Percentage of exports to outturn.	Outturn.	Exports.	Percentage of exports to outturn.
1891-92 . . .	56,58	1,43	2·5	22,16	4,25	19·2	81,70	41	·48	163,44	6,09	3·7
1892-93 . . .	75,70	1,28	1·7	18,35	2,16	11·8	93,89	26	·28	187,94	3,70	2·0
1893-94 . . .	82,45	1,19	1·4	21,05	1,78	8·4	95,31	32	·34	198,81	3,29	1·7
1894-95 . . .	88,11	1,53	1·8	21,61	1,06	4·9	93,30	29	·37	203,02	2,88	1·4
1895-96 . . .	74,17	1,41	1·9	18,85	1,51	8·0	95,63	35	·37	188,65	3,27	1·7
1896-97 . . .	50,09	1,20	2·4	15,93	39	2·5	63,65	23	·36	129,67	1,82	1·4
1897-98 . . .	87,68	1,16	1·3	15,39	44	2·9	104,45	18	·17	207,52	1,78	·86
1898-99 . . .	91,36	1,61	1·8	21,58	2,81	13·1	111,27	46	·41	224,21	4,88	2·2
1899-00 . . .	72,00	1,43	2·0	21,48	1,45	6·8	79,69	30	·38	173,17	3,18	1·8
1900-01 . . .	74,32	1,35	1·8	16,15	13	·8	90,01	14	·16	180,48	1,62	·89
1901-02 . . .	68,71	1,32	1·9	20,31	1,12	5·5	96,33	27	·28	185,35	2,71	1·5
1902-03 . . .	81,48	1,44	1·8	18,23	1,57	8·6	106,81	60	·56	206.52	3,61	1·7
1903-04 . . .	78.23	1,57	2·0	22,12	3,72	16·8	105,13	72	·69	205,48	6,01	2·9
1904-05 . . .	77,21	1,60	2·1	25,92	6,08	23·4	89,95	1,08	1·2	193,08	8,76	4·5
1905-06 . . .	74,50	1,56	2·1	21,22	2,75	13·0	85,19	54	·63	180,91	4,85	2·7
1906-07 . . .	75,24	1,39	1·8	22,68	2,38	10·5	97,38	41	·42	195,30	4,18	2·1
1907-08 . . .	59,95	1,22	2·0	22,26	2,58	11·6	83,61	66	·79	165,82	4,46	2·7
1908-09 . . .	67,66	1,14	1·7	14,65	44	3·0	88,08	20	·23	170,39	1,78	1·04
1909-10 . . .	84,13	1,31	1·6	18,92	3,03	16·0	103,16	60	·58	206,21	4,94	2·4
1910-11 . . .	82,36	1,52	1·8	23,10	3,64	15·8	105,85	65	·52	211,31	5,71	2·7
1911-12 . . .	79,51	1,89	2·4	23,61	3,95	16·7	98,44	2,91	3·0	201,56	8,80	4·4

* Outturn of previous year taken against the Exports of the next year.

[In lakhs of maunds.

Years.	RICE.				WHEAT.				OTHER FOODGRAINS.				TOTAL.			
	Exports.	Imports.	Net exports.	Percentage of outturn.	Exports.	Imports.	Net exports.	Percentage of outturn.	Exports.	Imports.	Net exports.	Percentage of outturn.	Exports.	Imports.	Net exports.	Percentage of outturn.
1891-92 .	143	11	132	2·3	425	5	420	18·9	41	5	36	·43	609	212	588	3·6
1892-93 .	128	25	103	1·4	216	2	214	11·6	26	5	21	·22	370	32	338	1·8
1893-94 .	119	73	46	·56	178	1	177	8·4	32	7	25	·26	329	81	248	1·2
1894-95 .	153	60	93	1·1	106	3	103	4·8	29	5	24	·26	288	68	220	1·08
1895-96 .	141	32	109	1·5	151	2	149	7·8	35	5	30	·31	327	39	288	1·5
1896-97 .	120	86	34	·68	39	8	31	1·9	23	10	13	·20	182	104	78	·60
1897-98 .	116	164	—48	—·55	44	1	43	2·8	18	9	9	·09	178	174	4	·02
1898-99 .	161	85	76	·83	281	..	281	13·1	46	6	40	·36	488	91	397	1·8
1899-00 .	143	180	—37	—·51	145	4	141	6·6	30	27	3	·04	318	211	107	·62
1900-01 .	135	278	—143	—1·9	13	9	4	·25	14	41	—27	—·30	162	328	—166	—·92
1901-02 .	132	181	—49	·71	112	3	19	5·4	27	20	7	·07	271	203	68	·37
1902-03 .	144	106	38	·47	157	..	157	8·6	60	12	48	·45	361	118	243	1·2
1903-04 .	157	45	112	1·4	372	..	372	16·8	72	6	66	·63	601	51	550	2·7
1904-05 .	160	73	87	1·1	608	..	608	23·5	108	10	98	1·1	876	83	793	4·1
1905-06 .	156	113	43	·58	275	6	269	12·7	54	12	42	·49	485	131	354	2·0
1906-07 .	139	202	—63	—·84	238	3	235	10·4	41	10	31	·32	418	215	203	1·04
1907-08 .	122	237	—115	—1·9	258	4	254	11·4	66	9	57	·68	446	250	196	1·2
1908-09 .	114	286	—172	—2·5	44	8	36	2·5	20	15	5	·06	178	309	—131	—·77
1909-10 .	131	241	—110	—1·3	303	..	303	16·0	60	14	46	·45	494	255	239	1·2
1910-11 .	152	134	18	·21	364	..	364	15·8	55	12	43	·41	571	146	425	2·01
1911-12 .	189	56	133	1·7	395	..	395	16·7	291	8	288	2·9	880	64	816	4·05

Prohibition of exports will not exercise any large and permanent check on the rise of prices.

241. The first conclusion, which suggests itself from a study of the figures contained in the foregoing table, is that the prohibition of exports in years of famine would not ensure such a relatively large addition to the stock of foodgrains as would bring down their prices to any remarkable extent. Even if prices were to fall substantially, one effect of it would be to tax the people of Burma and other localities, that have a surplus, for the benefit of the people of the famine-stricken areas, as it is they who would practically pay the whole of the export duty. The objections to this course are obvious. There would also be no object in retaining the finer qualities of foodgrains in the country when in exchange for them much larger quantities of inferior grain well suited for the consumption of a great number of the people could be obtained from other countries.

Arguments against an export duty.

242. The economic arguments against an export duty cannot be dismissed as academical. The effect of foreign trade generally is to steady prices in India of the commodities entering into international commerce, preventing them from falling to a level lower than that at which the commodities can be profitably exported, or from rising to a level higher than that at which they can be profitably imported. The variations in prices are, thus, greatest in those commodities which are not affected by European trade, *e.g.*, Jowar, Bajra, Ragi, etc. (*vide* para. 93, Chapter IV). The export trade clearly encourages production and creates the reserve which is drawn upon in times of scarcity. This reserve actually tends to prevent prices rising to the extent that they would otherwise do. If a prohibitive export duty were to be levied in good years, the stocks of grains would accumulate and grain prices would fall. The cultivators, who form about two-thirds of the population of India would be poorer by the difference between the price that would prevail after the imposition of the prohibitive export duty and that which they would have otherwise obtained. It would, therefore, be a loss to India if any check were to be put upon exports. Burma, which depends largely upon its exports of rice to India proper and other countries, specially in times of famine and the Punjab with its wheat-growers would suffer particularly.

243. Another fact to be remembered is that, if there is a fall in prices, it would no longer be profitable to cultivate the inferior lands, which would then soon go out of cultivation, and there would be a permanent decrease in the produce of foodgrains in India, and in consequence a rise in the prices.

CHAPTER VIII.

World-factors—Causes affecting all countries of the world and not confined to India alone.

INCREASE IN THE WORLD'S DEMAND FOR COMMODITIES.

Increase in demand for commodities.

244. The following statement shows the world's production of the important food-grains, cotton and sugar, from 1895 to 1910. A study of these figures shows that, disregarding decreases in individual years, the effect of which could have only been temporary, the world's supply of these commodities has been steadily increasing and at a greater speed than the population of the world as a whole. Still prices have risen practically throughout the world during the period included in the table. It is not, therefore, a decrease in the supply which could have led to an increase in the general price level in the world's markets. The question then arises, has the demand for commodities in general increased so materially as to cause such a substantial increase in the general prices of the world? There has undoubtedly been a great increase in the effective demand for commodities owing (1) to a higher standard of living consequent on the general prosperity of the world, (2) to the increased use of foodgrains in manufactures, (3) to the sinking of large amounts of capital on the construction of new railways, and on other industrial enterprises, (4) to the opening up of new lands in all parts of the world, (5) to the transfer of a large amount of labour from areas of low standard of food consumption to industrial countries with a higher standard of consumption, (6) to the great wars that have taken place in quick succession since 1898 and (7) to the activity of the most prosperous nations of the world in increasing their army and navy, operations which have undoubtedly stimulated consumption of all classes of commodities. But it is difficult to allocate the share of the increase in prices due to the increased demand.

World's production of important foodgrains, cotton and sugar.

Year.	IN MILLIONS OF BUSHELS.						Total.	Total Index Numbers (1895-99 = 100).	Cotton (In thousand Bales of 500 lbs. gross weight or 478 lbs. not each).	Sugar (cane and beet) in 1,000 Tons.
	Wheat.	Rice.*	Corn.	Oats.	Barley.	Rye.				
1890 .	2,201	..	..	..	..	..	..	..	..	..
1891 .	2,432	..	..	..	..	..	..	..	..	..
1892 .	2,482	..	..	..	..	..	..	..	..	..
1893 .	2,559	..	..	..	..	..	..	..	..	..
1894 .	2,661	..	1,671	..	..	..	..	..	..	..
1895 .	2,593	1,172	2,835	3,008	916	1,468	11,992	102	..	10,150
1896 .	2,506	999	2,964	2,847	932	1,499	11,749	100	..	10,221
1897 .	2,234	714	2,585	2,631	863	1,306	10,333	88	..	10,670
1898 .	2,942	1,214	2,680	2,885	1,024	1,465	12,210	104	..	11,062
1899 .	2,768	1,235	2,724	3,236	925	1,618	12,506	106	..	10,777
1900 .	2,641	1,526	2,793	3,166	960	1,558	12,643	108	15,894	12,444
1901 .	2,956	1,657	2,367	2,863	1,072	1,416	12,331	105	15,926	13,691
1902 .	3,090	1,777	3,187	3,626	1,229	1,648	14,558	124	17,332	12,376
1903 .	3,190	1,848	3,067	3,378	1,236	1,660	14,378	122	17,279	12,947
1904 .	3,164	1,929	3,109	3,611	1,176	1,742	14,731	125	21,005	12,310
1905 .	3,327	1,816	3,461	3,510	1,180	1,496	14,790	126	18,342	14,613
1906 .	3,434	1,863	3,929	3,545	1,297	1,433	15,501	132	22,109	14,969
1907 .	3,129	1,773	3,350	3,592	1,272	1,539	14,655	125	18,821	14,220
1908 .	3,173	1,802	3,524	3,570	1,266	1,590	14,926	127	21,321	14,758
1909 .	3,633	2,253	3,673	4,317	1,475	1,744	17,095	145	18,052	15,164
1910 .	3,651	2,242	4,027	4,147	1,385	1,676	17,128	146	19,993	17,504
1911 .	3,517	..	..	3,829	1,377	1,578	..	..	..	..

* 1 Bushel = 60 pounds.

INCREASED SUPPLY OF GOLD FROM THE WORLD'S MINES.

Increased production of gold in recent years.

245. In recent years the production of gold has increased to an amount unknown before. A new golden era may be said to have commenced with the discovery of the Transvaal gold fields and the development of the cyanide process invented by Messrs. McArthur and Forrest, a process which has rendered possible the exploitation of the lower grade ores, from which, but for the invention, gold could not have been profitably extracted. The value of gold like other commodities is subject to the law of supply and demand, and if the supply of gold becomes abundant it must decrease in value, and being the standard by which the value of all other commodities in the world's markets is measured, a decrease in the value of gold necessarily means a rise in the price of all other commodities.

Fall in the value of gold slow and gentle.

246. The fall in the value of gold, as pointed out by Jevons, is only gradual and gentle. "Far from taking place with sudden and painful starts, flinging the rich headlong to a lower station and shaking the groundwork of society, nothing is more insidious, slow and imperceptible. It is insidious because we are accustomed to use the standard as invariable, and to measure the changes of other things by it, and a rise in the price of any article, when observed, is naturally attributed to a hundred other causes than the true one. It is slow, because the total accumulations of gold in use are but little increased by the additions of any one or of several years. It is imperceptible, because the slow rise of prices due to gold depreciation is disturbed by much sudden and considerable, but temporary, fluctuations, which are due to commercial causes, and are by no means a novelty." Jevons calculated that, consequent on the American and Australian gold discoveries, the average fall in the purchasing power of gold measured by the change in the prices of 39 'chief' articles, between 1845-50 and 1860-62, was 14 per cent., and measured by 64 'minor' articles, 6·34 per cent. The total average fall he estimated at 9 per cent., or the average rise of prices at 10½ per cent.

Most writers attribute rise of prices to increased supply of gold.

247. It is also interesting to note that of thirty recent writers on the causes of the rise of prices, no less than 17 have attributed the advance of prices mainly to this increase of the gold supply, while four others regard this cause as of secondary importance.

Massachusetts Commission on the cost of living.

248. The Massachusetts Commission on the Cost of Living believed that "the primary cause of the world-wide advance of prices since 1897 is the increase of the gold supply, which has reduced the purchasing power of money and brought about a corresponding increase of values, measured in money, in all the leading commercial States, and, at least in the United States, has served as the basis for a vast extension of credit."

Views of Prof. Seligman.

249. Professor E. R. A. Seligman, Columbia University, United States of America, summarises his views on the rise of prices as follows :—"It is obvious that, apart from the minor oscillations in any one commodity, a general change in the level of prices can be explained only by a cause which attaches equally to all prices. Now, price in general is value expressed in terms of money ; hence a general change in the price-level means a change in the value of money. But the value of money, like the value of everything else, depends on the relation of the supply of money to the demand for money. From the point of view of supply the answer is easy. The standard of the civilized world is now, and has been for some time, gold . . . . . Gold, in other words, is being turned out in such enormous quantities that it is falling in value. But a fall in the value of gold, other things being equal, is tantamount to a rise in general prices."

United States Wages and Prices Committee.

250. The majority of the United States Wages and Prices Committee reported in 1911 as follows :—

"While the actual increase in the world's gold supply has been very great, the increase in the credit based upon gold has far exceeded it. Some of our best economists estimate that there is an increase in credit of from 3 to 4, to 1 in gold. It seems certain, therefore, that this enormous increase in the standard by which all other commodities are measured has surpassed the normal increase required for the growing volume of the world's business, and if this be true, the result must be a cheapening of the standard with a consequent advance in price. In other words, the recent increase in production of the standard of value, bringing with it a still greater increase in credit, has of necessity decreased the value of the standard and thereby increased the price of the commodities which it measures. To what extent this increase of gold production has influenced prices cannot, of course, be determined, but that it has been an element in bringing about an increase in the world's prices cannot, we think, be denied."

251. The minority of the Committee who differed substantially from the opinion of the majority in other respects remarked as follows :—

"We agree with the majority that the increase in gold supply has affected the prices of commodities, and also in their statement that it is 'not the dominant, or even a principal cause of the rise of prices.' We are glad to be able to concur with the majority in a matter of such vital interest."

"That there has been a rise in the prices throughout the world seems to be true, but the extent of the rise has not been the same everywhere."

"England being practically a free-trade country, would show more accurately the general level of the advances in the price of commodities of the world caused by the increased production of gold. To what extent the rise in the price of commodities in England has been affected by causes other than the increased production of gold, we are unable to say, but it will hardly be assumed that there was no other cause."

"Had increased money supply been a large factor in advancing prices, we do not see why it should not act with equal force upon all commodities under like conditions as to supply and demand."

Statistics of production of gold.

252. The following statement shows the annual average production of gold in the world from 1493 up to 1890 in different groups of years, and thereafter, year by year, from 1891—1912. These statistics show that there has been an enormous increase in the production of gold, especially during the last decade. In the five years ending 1890, the annual average was only twenty-three millions. In the next five years, 1891—1895, it rose to thirty-three millions, and in 1896—1900 to fifty-three millions. During the years 1900—1902, there was a decline in the annual output of the Transvaal mines owing to the Boer War, but the average of the five years, 1901—1905, for the whole world rose to sixty-six millions. In the next quinquennium ending with 1910, the annual average output rose to eighty-nine millions. The figures for the last two years have been obtained from the Mining and Engineering Journal of New York. These figures show a decrease in the output of 1911, but it is believed that the figures given in the journal are under-estimates and that when the United States Mint Reports, from which the figures for the other years have been taken are available, they will show a continued increase in the last two years also. The increase, therefore, is a remarkable one. During the twenty-two years ending with 1912 the total output has been more than thirteen hundred ninety-four millions sterling against a total production of about sixteen hundred and thirty-seven millions since the discovery of America in the fifteenth century up to 1890, according to the

estimates of Soetbeer down to 1850 and of the Master of the United States' Mint since that year up to 1910 and those of the Mining and Engineering Journal of New York for 1911 and 1912.

Production of gold in the world since the discovery of America.

Periods.	AVERAGE ANNUAL PRODUCTION.			Years.	ANNUAL PRODUCTION.		
	In fine ounces.	Value in sterling.	Progressive addition to the stock of gold in sterling.		In fine ounces.	Value in sterling.	Progressive addition to the stock of gold in sterling.
1493—1520 (28 years)	186,470	792,203	22,181,684	1891	6,320,194	26,848,575	1,663,676,097
1521—1544 (24 „)	230,194	977,975	45,653,084	1892	7,094,266	30,136,884	1,693,812,981
1545—1560 (16 „)	273,596	1,162,308	64,250,012	1893	7,618,811	32,365,181	1,726,178,162
1561—1580 (20 „)	219,906	934,203	82,934,072	1894	8,764,362	37,231,586	1,763,409,748
1581—1600 (20 „)	237,267	1,007,978	103,093,632	1895	9,615,190	40,845,920	1,804,255,668
1601—1620 (20 „)	273,918	1,163,541	126,364,452	1896	9,783,914	41,562,704	1,845,818,372
1621—1640 (20 „)	266,845	1,133,538	149,035,212	1897	11,420,068	48,513,146	1,894,331,518
1641—1660 (20 „)	281,955	1,197,654	172,988,292	1898	13,877,806	58,953,779	1,953,285,297
1661—1680 (20 „)	297,709	1,264,647	198,281,232	1899	14,837,775	63,031,803	2,016,317,100
1681—1700 (20 „)	346,095	1,470,147	227,684,172	1900	12,315,135	52,315,430	2,068,632,530
1701—1720 (20 „)	412,163	1,750,860	262,701,372	1901	12,625,527	53,634,041	2,122,266,571
1721—1740 (20 „)	613,422	2,605,946	314,820,292	1902	14,354,680	60,979,577	2,183,246,148
1741—1760 (20 „)	791,211	3,361,158	382,043,452	1903	15,852,620	67,342,905	2,250,589,053
1761—1780 (20 „)	665,666	2,827,886	438,601,172	1904	16,804,372	71,386,385	2,321,975,438
1781—1800 (20 „)	571,948	2,429,627	487,193,712	1905	18,396,451	78,140,328	2,400,124,766
1801—1810 (10 years)	571,563	2,427,983	511,473,542	1906	19,471,080	82,714,367	2,482,839,133
1811—1820 (10 „)	367,957	1,563,033	527,103,872	1907	19,977,260	84,864,636	2,567,703,769
1821—1830 (10 „)	457,044	1,941,564	546,519,512	1908	21,422,244	90,929,003	2,658,632,772
1831—1840 (10 „)	652,291	2,770,962	574,229,132	1909	21,969,303	93,326,942	2,751,959,714
1841—1850 (10 „)	1,760,502	7,478,762	649,016,732	1910	21,996,297	93,441,651	2,845,401,365
1851—1855 (5 years)	6,410,324	27,231,422	785,173,862	1911	..	91,875,000	2,937,276,635
1856—1860 (5 „)	6,486,262	27,554,057	922,944,147	1912	..	93,923,000	3,031,199,365
1861—1865 (5 „)	5,949,582	25,274,240	1,049,315,347	..	..	..	..
1866—1870 (5 „)	6,270,086	26,635,677	1,182,493,732	..	..	..	..
1871—1875 (5 „)	5,591,014	23,751,074	1,301,249,102	..	..	..	..
1876—1880 (5 „)	5,543,110	23,547,423	1,418,986,217	..	..	..	..
1881—1885 (5 „)	4,794,755	20,368,338	1,520,827,907	..	..	..	..
1886—1890 (5 „)	5,461,282	23,199,923	1,636,827,522	..	..	..	..

Usages of gold.

253. The whole of the gold produced each year does not, of course, go into currency. The usages of gold are generally held to be four, *viz.*, (*a*) for the arts, (*b*) for hoarding, (*c*) for circulation, and (*d*) for bank reserves. The supply as regards the arts has clearly no effect on prices, and if gold is hoarded it has much the same effect on prices as if it had remained in the mines. It is only the amount used as currency and that held in bank reserves that have an effect on prices.

254. It is difficult to make a satisfactory estimate of the gold consumed in the arts and the industries. Many distinguished authorities have made investigations in this matter from time to time, but have not been able to come to any satisfactory conclusion. Upon the information available, the United States Mint has made an estimate of the annual consumption in the arts and the industries of the world, excluding Asia and Africa. These estimates are, however, admittedly inconsistent and unsatisfactory in many respects. Prof. W. T. Layton, Newmarch Memorial lecturer in Statistics of the University College, London, says, "large quantities (of gold) are used by industries of various kinds—the proportion which finds its way into the arts, as compared with the amount used as currency being dependent on the extent of the demand for gold as material at the current value of gold. It is difficult to ascertain how much of the world's supply is used in industry, for gold is continually transferred from one employment to another. But a recent estimate by the Master of the United States' Mint shows that in 1907 the new material used for industrial purposes throughout the world amounted to about one-third of the world's production in that year.[*] But this estimate has

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[*] In his report for 1911, the Master of the Mint, United States of America, estimates that the consumption of gold for industrial purposes in the world, except Asia and Africa, amounted, in 1910, to about one-fourth of the total production.

very little basis, and it is largely a matter of conjecture how far the enormous increase in the world's gold supply has had the effect of stimulating gold using industries."

Hoarding of Gold in India and Egypt.

255. It is also difficult to frame any reliable estimate of the total quantity of gold hoarded in the different countries of the world. The net amount of gold imported into India from 1898-99 to 1911-1912 has amounted to £110,000,000. This with the total output of gold in India itself during the period gives a total of £140.000.000 as the value of gold absorbed in India during the fourteen years. Almost the whole of it, with the exception of only a few millions held in the currency and other reserves and in active circulation, has been hoarded. In other words, India alone has hoarded about fifteen per cent. of the world's production of gold during the fourteen years ending 1911-12. There are many other countries also, Egypt in particular, which have hoarded large amounts. The amount of gold absorbed by Egypt during 1890 to 1910 has been estimated at £30,000,000.

Increase in Bank Gold Reserves in different countries.

256. The table below shows the additions in gold to the Bank and other reserves of some important countries during the twenty-one years, 1890—1910.

Additions in gold to the Bank and other reserves of some important countries.

Banks and Treasuries.	31st December 1890.	31st December 1899.	31st December 1910.
	£	£	£
Bank of England	17,784,000	29,002,000	31,095.000
Scotch Banks of Issue	4,591,000	6,227,000	1.918.000
Irish Banks of Issue	3,480,000	2,816,000	3,649,000
Germany—Imperial Bank	12,234,000	22,939,000	32,760,000
Germany—German War Fund	5,869,000	5,869,000	5,869,000
Austria-Hungary	5,426,000	43,982,000	54,971,000
Bank of France	50,471,000	74.310,000	130,050,000
Bank of Spain	6,009,000	13,485,000	16.301,000
Bank of Portugal.	1,028,000	1,075.000	1.348,000
Bank of Netherlands	5.069,000	3,730,000	10,391,000
National Bank of Belgium	2,606,000	4,329,000	5,037.000
Bank of Italy	18,132,000	15,702,000	38,670,000
Bank of Naples			8,031.000
Bank of Sicily			2.261,000
Bank of Russia	42,565,000	90,275,000	130,288,000
Bank of Finland	861,000	888,000	873,000
National Bank of Roumania	2,011,000	1,444,000	4,759,000
National Bank of Bulgaria	426,000	127,000	1,254.000
National Bank of Servia	345,000	286,000	992,000
Imperial Ottoman Bank	740,000	1,384,000	6,171.000
Royal Bank of Sweden	1,379,000	2,195,000	4,482,000
National Bank of Denmark	2,754,000	3,249,000	4,085,000
National Bank of Norway	1,755,000	1,775,000	1,904,000
Banks of Switzerland	2,364,000	3,890,000	6,187,000
Bank of Greece	21,000	79,000	40.000
United States—In National Banks. . . .	17,348,000	41,860,000	46,849,000
„ In State Banks	5,306,000	16,400,000	16,323.000
„ In the Treasury . . .	64,459,000	82.279,000	226,731,000
Bank of Australia	18,465,000	21.862,000	37,915,000
Canadian Treasury and Banks	1,505,000	4,651,000	22,235,000
Banks of South Africa	1,028,000	6.740,000	10,357.000
TOTAL .	296,031,000	503,850.000	866,856,000

Net imports of Gold in different countries.

257. Information regarding the net additions to the stock of gold in these countries, *i.e.*, the net imports *plus* the production of gold, is not, however, available for all of them. The table below gives the information only for those countries for which it is available.

Net additions to the stocks of Gold in important countries for which statistics are available.

(In hundreds of thousands of pounds sterling.)

Increase +
Decrease —

Years.	United Kingdom.	United States.	Germany.	France.	Italy.	India.	TOTAL.
1890 . .	+9,3	+6,0	+3,0	—5,3	..	+4,7	17,7
1891 . .	+6,0	..	+5,0	+5,1	..	+2,2	18,3
1892 . .	+6,6	—5,0	+1,4	+11,1	—1,0	—1,1	12,0
1893 . .	+4,7	+6,0	+1,9	+7,5	—4,9	+1,2	16,4
1894 . .	+11,9	—8,0	+12,6	+14,2	—4	—1,9	28,4
1895 . .	+14,6	—4,5	+8	+4	—9	+2,4	12,8
1896 . .	—5,6	+20,2	+1,1	—4	—7	+2,6	17,2
1897 . .	..	+11,7	+1,8	+6,4	—4	+4,7	24,2
1898 . .	+7,1	+41,6	+5,2	—4,6	—8	+5,9	54,4
1899 . .	+11,0	+15,8	+6,8	+6,3	—6	+6,0	45,3
1900 . .	+7,7	+18,8	+6,4	+5,3	—1,0	+2,4	39,6
1901 . .	+6,7	+15,6	+10,3	+11,4	—7	+3,2	46,5
1902 . .	+6,2	+18,1	+1,6	+12,5	+1,8	+7,8	48,0
1903 . .	+9	+19,3	+9,5	+7,4	+10,7	+8,9	56,7
1904 . .	+8	+9,3	+19,4	+21,3	+1,8	+8,9	61,5
1905 . .	+7,7	+18,8	+9,0	+25,9	+12,0	+2,7	76,1
1906 . .	+3,4	+41,2	+13,4	+10,8	+8,7	+12,2	89,7
1907 . .	+6,2	+36,2	—8	+11,6	+10,9	+13,7	77,8
1908 . .	—3,8	+13,2	+15,4	+39,8	—1	+5,1	69,6
1909 . .	+7,4	+2,6	+2,6	+14,4	—2,2	+16,7	41,5
1910 . .	+6,4	..	+17,6	+4,6	—1,5	+18,3	45,4
TOTAL .	115,2	276,9	144,0	205,7	30,7	126,6	899,1

Absorption of Gold for purposes other than the addition to Bank reserves.

258. The net amount of gold absorbed in these countries, during the years 1890—1910, for purposes other than increasing the bank and other reserves may then be deduced from the two foregoing tables.

—	Net addition to stock of gold.	Addition to reserve.	Net absorption for other purposes.
United Kingdom	115,200,000	13,807,000	101,393,000
United States of America	276,900,000	202,790,000	74,110,000
Germany	144,000,000	20,526,000	123,474,000
France	205,700,000	79,579,000	126,121,000
Italy	30,700,000	—10,041,000	40,741,000
India	126,600,000	6,500,000	120,100,000
TOTAL .	899,100,000	313,161,000	585,939,000

Addition to Bank Reserves less than half the total production of Gold.

259. Thus, these few countries alone have absorbed for other purposes, more than £585,000,000 of gold during the twenty-one years, against a total produce of £1,233,000 in the whole world. The United States Mint gives the following

estimates of the total amount of gold diverted from monetary use or so employed that apparently it would not be directly effective upon world prices.

	£
Industrial consumption in the world except Asia and Africa	196,900,000
India	89,000,000
Egypt	30,000,000
Japan	14,200,000
South America	70,500,000
Mexico	5,900,000
TOTAL	406,500,000

This clearly shows that, out of the world's total production of gold, the amount utilised for the purposes of currency and bank reserves is considerably less than half the total quantity of the gold produced.

Increased demand for Gold as currency.

260. It should be remembered that in recent years there has been an increased demand for gold as currency not only in consequence of an extraordinary growth of business in countries in which banking and credit has not developed to the same extent as in the most advanced countries of Western Europe and the United States, but also because many countries in which silver was formerly the standard of value have recently adopted gold as their legal standard. Thus, Costa Rica adopted a gold standard in 1896, Russia and Japan in 1897, Equador in 1900, Panama and Columbia in 1903 and Mexico in 1905. With the increase in gold production, there has thus been a large increase in the demand for gold currency.

Accumulation of Gold stock in South America.

261. Argentina and Brazil have also accumulated during the last decade heavy reserves of gold as the basis for their paper currencies. The stock in the conversion fund and in the National Bank of Argentina is estimated to have increased during the 10 years ending with December 1910 by £42,400,000. The stock in the conversion fund of Brazil is also estimated to have increased during the same period by £18,200,000. Uruguay has also imported a large amount of gold during this period, but it is believed most of this has ultimately reached Argentina. Director Roberts of the United States Mint says :—" It is probably fair to estimate that altogether South America during the second period has increased its gold holdings by the amounts now in the conversion funds of Argentina and Brazil, or, in round figures, £70,500,000. This gold has been taken for the reorganization of monetary systems. It has not entered into circulation nor has there been any material increase in the amount of paper currency outstanding."

262. " The use of gold as a reserve against paper currency, thus affording a stable basis for the exchanges, is undoubtedly beneficial to trade and industry and particularly favourable to international trade and investments, but the influence of development in these new countries, chiefly devoted to agriculture and the production of raw materials, would seem to be for a downward rather than an upward movement of world prices. The exports of Brazil and Argentina consist of coffee, cocoa, rubber, tobacco, cotton, wheat, corn, linseed, wool, hides and leather, live stock and meats, all of which commodities are important factors in price tables. Although the market course of these products has been upward, the influence of these countries upon their prices has been unmistakably downward."

Direct effect of increased supply of Gold on prices not very great.

263. Gold coin is no longer accumulated in a few important centres, but is becoming diffused all over the world. The total amount of goods and services that have to be paid for throughout the world in any year is, however, so vast that the annual addition to the gold currency of the world would be but trifling. Taking Clearing House returns into account, in 1907 alone the transactions of the

London Clearing Banks amounted to £12,730,000,000 and of the German Clearing Houses to £2,218,000,000, Paris Clearing Houses to £1,036,000,000, the Clearing Houses of the five principal cities of the United States to £29,836,000,000, a total of £45,820,000,000. The total transactions of the world would thus amount to many thousands of million pounds sterling. Compared with this, the annual additions to the gold currency of the world would be very small indeed and would not raise general prices by more than a very small fraction of 1 per cent. at the most. The effect would also not be cumulative, for when the first influence of the addition had once been exercised in producing a trifling rise of world's prices, the higher price level would absorb the enhanced stock of money, in conducting the same volume of transactions as before, at the higher level of prices. The direct effect of the increased production of gold in raising prices is not, therefore, very great. It is only by its indirect effect in enlarging the volume of credit to a substantial extent that its effect on prices becomes appreciable.

Statement showing the Clearing House transactions of some cities and countries of the world.

Years.	AMOUNT IN MILLIONS.					INDEX NUMBERS.				
	London Clearing Banks.	German Clearing Houses.	Paris Clearing Houses.	Principal Cities in United States of America.	India—Calcutta, Bombay and Madras.	London Clearing Banks.	German Clearing Houses.	Paris Clearing Houses.	Principal Cities in United States of America.	India—Calcutta, Bombay and Madras.
	£	Marks.	Francs.	Dollars.	R					
1890	7,801	17,991	6,004	60,623	1,37,75	115	101	111	108	94
1891	6,848	17,663	4,869	56,718	1,46,50	101	100	90	102	100
1892	6,482	16,763	4,715	62,109	1,43,81	96	94	87	111	98
1893	6,478	18,123	5,379	54,323	1,46,08	95	102	99	97	100
1894	6,332	18,233	6,144	45,686	1,58,34	93	103	113	82	108
1895	7,593	21,121	7,352	53,348	1,75,79	112	119	136	95	120
1896	7,575	22,720	7,550	51,333	1,81,23	112	128	139	92	124
1897	7,491	24,017	8,546	57,403	1,90,73	110	135	158	103	130
1898	8,097	27,975	9,568	68,931	1,76,25	119	158	176	123	120
1899	9,150	30,238	10,656	94,178	2,02,55	135	170	197	169	138
1900	8,960	29,473	10,664	86,205	2,12,35	132	166	197	154	145
1901	9,561	28,922	9,965	118,579	2,11,49	141	163	184	212	144
1902	10,029	29,969	10,816	118,023	2,29,49	148	169	199	211	157
1903	10,120	31,137	11,833	109,209	2,43,91	149	175	218	195	166
1904	10,564	32,635	13,897	112,621	2,51,07	156	184	256	201	171
1905	12,288	37,603	17,855	143,909	3,00,45	181	212	329	257	205
1906	12,711	42,036	24,809	160,019	3,31,48	187	237	458	286	226
1907	12,730	45,313	26,095	145,175	3,66,38	188	255	481	260	250
1908	12,120	45,961	..	132,408	3,56,20	179	259	..	237	243
1909	..	..	..	165,608	3,61,00	..	..	..	296	246
1910	..	..	..	..	4,10,08	..	..	..	..	280
1911	..	..	..	..	4,54,51	..	..	..	..	310
1912	..	..	..	..	5,16,78	..	..	..	..	353

DEVELOPMENT OF CREDIT.

Views of the "Statist" on development of credit affecting world's prices.

264. The importance of the development of credit as affecting world's price levels has been emphasised of late by many economists and writers on prices. The "Statist" said—

> "What really does determine prices is credit. Prices rise when there is an eagerness to buy; prices fall when there is an unwillingness to buy; in other words, when credit is good, prices are high; when credit is bad, prices are low Credit, in its turn, is determined partly by the general feeling of the times, and partly by the ability or inability of the banks to lend freely."

Great development of credit in the world.

265. There can be no doubt that in the world of business the organisation of credit has been greatly increased and perfected in recent years. This increased output of credit has been supported and facilitated by the increased supply of gold, but it has been actually brought into play by a combination of

increased credibility and an increased demand for credit resulting from a great development of profitable economic enterprises upon a larger business scale simultaneously in a number of new areas of enterprise.

Increased credibility.

266. A most important cause for the increased credibility is that a large proportion of modern businesses has taken a financial form that makes their assets available as security for credit. The substantial economic resources of a country, its rich and fertile lands, its houses, factories and other buildings, its machinery and plants, the materials, finished commodities and the goodwill which form the marketable wealth of a community, constitute the chief basis of the credit which bankers and others create and supply. Until comparatively recent times, only real property in a few secure countries and a very few forms of personal property were available as effective pledges. One of the principal reasons why so many private businesses have reconstituted themselves as Joint-stock Companies, and why the corporate form has been taken by almost all large new capitalistic enterprises, is that, thereby, they are enabled to utilise their stocks and shares as a credit basis. The general result has been that in recent years a rapidly increasing proportion of the aggregate wealth of most communities has become available as bank security.

Increased demand or credit.

267. The opening up of large new, genuine areas of over-seas investment has generally given a stimulus to that profitable business which, with brief and partial interruptions, has prevailed since the middle of the last decade of the nineteenth century. The capitalistic development in Argentina, Brazil and other South American countries, the discovery of natural values in North-West Canada, the immense impetus given to the mining, metal and other manufacturing industries of the United States, the entering of Japan upon a new industrial career, really account for the increased demand for credit. An immense quantity of this credit has been manufactured in America, the population, wealth and business development of which have proceeded with unprecedented celerity during the last fifteen years. In other civilised countries of the world, the desire to participate, to the utmost extent, in the exploitation of the rich, newly discovered resources of distant lands and in the profitable home trade resulting therefrom, has brought about an abundant use of the machinery of credit.

Sir George Paish's estimate of capital invested by England in different countries.

268. In a paper which he read before the Royal Statistical Society in December 1910, to which reference has been made elsewhere, Sir George Paish gave the following statistics of the capital subscribed in London for investment in Colonial and foreign countries up to the end of 1907 and during each of the three years 1908, 1909 and 1910. Of the total amount subscribed, 53 per cent. has been invested in the Americas, 16 per cent. in Asia, 14 per cent. in Africa, 12 per cent. in Australasia and 5 per cent. in the continent of Europe. The total amount for each of the different continents has been as follows :—

—	Up to 1907.	1908-10.	Total.
	£	£	£
America (North and South) . .	1,385,599,000	314,401,000	1,700,000,000
Asia	415,490,000	84,510,000	500,000,000
Africa	411,550,000	43,450,000	455,000,000
Australasia	360,878,000	26,122,000	387,000,000
Europe	101,622,000	48,378,000	150,000,000
TOTAL .	2,675,139,000	516,861,000	3,192,000,000

in estimating the total amount which Great Britain has supplied to other nations Sir George Paish took no account of the large sum, termed private capital, which is employed abroad by the British people in a variety of ways such as the purchase of land, loans on mortgage, deposits in banks, branch manufacturing, mercantile and trade undertakings, etc. If these be included, the total sum, invested in other countries, would amount, according to him, to £3,500,000,000. An idea of the enormous magnitude of the demand for credit, in recent years, may be formed from the fact that no less than £517,000,000 were subscribed in London alone for investment in colonial and foreign countries and that of this, a very small portion was taken up by European countries, and that the investment of the three years is more than one-sixth of the total amount found by England for the same purpose up to the end of 1910.

Extension of Banking and financial system.

269. Along with the expansion of credibility, the main basis of credit, there has been a great extension and improvement of the banking and financial system, which has penetrated into fresh countries and into fresh strata of population. The following statement shows the growth of banking capital and deposits in England, Germany, France and the United States of America. A study of these figures will show that the growth of banking capital and deposits also has been enormous during the last fifteen years.

Growth of Banking and deposits in Banks in India compared with that of the most advanced countries of the world.

[In millions of pounds sterling.

Years.	Capital and Reserve Funds.						Deposits.					
	England.	France	Germany.	United States.	India.	Total.	England.	France.	Germany.	United States.	India.	Total.
1890	168	31	65	257	4	525	754	91	74	619	19	1,557
1891	176	31	67	274	4	552	789	92	76	621	18	1,596
1892	176	30	67	286	3	562	807	93	76	726	16	1,718
1893	176	30	68	296	3	573	801	90	76	668	15	1,650
1894	169	32	69	292	3	565	780	109	98	716	15	1,718
1895	174	34	74	297	3	582	817	106	110	738	17	1,788
1896	180	36	79	290	4	589	917	112	110	729	17	1,885
1897	186	36	94	284	4	604	934	118	125	781	17	1,975
1898	194	37	109	283	5	628	941	122	147	928	18	2,156
1899	197	39	123	280	5	644	967	132	164	1,173	20	2,456
1900	205	46	126	302	5	684	1,043	138	171	1,258	21	2,631
1901	241	47	127	320	5	740	1,151	156	176	1,516	24	3,023
1902	247	48	128	365	5	793	1,182	149	193	1,638	28	3,190
1903	251	51	134	414	5	855	1,246	163	210	1,718	30	3,367
1904	258	52	143	446	5	904	1,242	208	242	1,830	33	3,564
1905	273	55	157	471	5	961	1,318	211	281	2,104	34	3,948
1906	277	58	164	516	6	1,021	1,395	235	327	2,242	38	4,237
1907	285	61	..	567	6	..	1,456	208	346	2,436	41	..
1908	207	..	..	591	7	..	1,479	..	..	2,390	46	..
1909	..	..	..	584	7	..	..	..	..	2,644	49	..
1910	..	..	..	..	7	..	..	..	..	..	55	..
1911	..	..	..	..	7	..	..	..	..	..	..	..

Increase in the rate of interest.

270. The enormous increase in the production of gold has been accompanied by an increase in the prevailing rate of interest, as indicated by the following table. This has led not a few to believe that, money not having become cheaper, the influence of an abundant supply of gold on prices has been counteracted by other stronger forces. The development of credit is not, however, usually brought about by a lowering of the rate of interest but by an increase in the demand for credit. Credit may be dearer, notwithstanding a large increase in the gold supply which, in ordinary circumstances, enables a larger credit to be created. What has actually happened is that the expansion of the demand for credit has been so great that, in spite of the tendency of abundant gold in lowering its price,

that price has actually risen, and in spite of the rise, the enhanced demand has been maintained. The actual rate of interest also depends, in some measure, upon the estimates formed in men's minds of what the future production of capital will be, so that, in optimistic times, a high rate of interest is prevalent, the reverse being the case when pessimistic views hold the field. Because there existed genuine causes for trade prosperity and good profits, business men were willing and able to pay high prices for money which they reckoned they could put to profitable use. The increased demand for credit and the consequent rise in the rate of interest are due to the wonderful expansion of industrial enterprises which began more than a decade ago, and to the fact that the whole world is now looked upon as a field for safe investment.

Statement of Average holdings of gold and discount rates in the most important countries.

Years.	AVERAGE HOLDINGS OF GOLD. (*In millions of pounds sterling.*)				DISCOUNT RATES.			
	Bank of England.	Bank of France.	Reichsbank.	United States Treasury.	Bank of England.	Bank of France.	Reichsbank.	United States Treasury.
1890 . .	22	50	25	64	4·5	3	4·5	5·8
1891 . .	24	56	29	55	3·3	3	3·8	3·4
1892 . .	25	62	30	53	2·5	2·7	3·2	3·1
1893 . .	26	67	26	39	3·1	2·5	4·1	4·6
1894 . .	34	72	30	30	2·1	2·5	3·1	1·1
1895 . .	39	81	34	28	2	2·1	3·1	1·8
1896 . .	44	78	29	32	2·5	2	3·7	4·3
1897 . .	35	78	29	38	2·6	2	3·8	1·8
1898 . .	33	74	29	49	3·2	2·2	4·3	2·2
1899 . .	32	74	28	64	3·8	3·1	5	5
1900 . .	33	84	28	89	4	3·2	5·3	2·9
1901 . .	36	96	32	105	3·7	3	4·1	4
1902 . .	35	101	35	117	3·3	3	3·3	5·2
1903 . .	34	99	32	133	3·8	3	3·8	3·9
1904 . .	34	102	33	143	3·3	3	4·2	1·8
1905 . .	35	113	36	148	3	3	3·8	4·4
1906 . .	33	114	33	168	4·3	3	5·1	6·4
1907 . .	34	107	31	189	4·9	3·5	6	7·4
1908 . .	37	121	38	209	3	3·1	4·8	2
1909 . .	37	145	40	214	3·1	3	3·9	2·7

EFFECT OF WARS ON PRICES.

Great wars have contributed largely to the rise of prices.

271. Another important factor which has contributed largely to the rise of prices is the great wars which have taken place in quick succession during the last fifteen years. In periods of war, a large part of the supplies of capital and labour, which would otherwise be devoted to the extension of railways, the opening up of new lands, the erection of factories, etc., is diverted to unproductive purposes, and at the same time consumption is stimulated by the expenditure involved by the wars. The wars with Napoleon raised the cost of living enormously during the early years of the nineteenth century. In the same way, the Crimean war, the Indian Mutiny, the Italian war, the American Civil war and the German wars with Denmark, Austria and France prevented production from overtaking consumption and caused prices to be maintained at a high level, notwithstanding the immense improvements in the methods of transportation and of production that took place during the period. In the eighties, a period of unbroken peace

occurred, railways were built up on a vast scale, immense tracts of new lands were opened up and production was increased by leaps and bounds, and the progress of science permitted the world's output of goods to be transported from the producing to the consuming districts at a rapidly declining cost. Thus a long period of peace contributed, in no small measure, to the abnormally low cost of living in the nineties. In 1898, the long period of peace was broken by the Spanish-American war. Following upon this came the South African war and, not long after this, the Russo-Japanese war. These struggles caused an unproductive expenditure of about nine hundred millions of pounds sterling, stimulated consumption and prevented production to keep pace with the growth of demand. The result was a great increase in demand in proportion to the supply and a marked advance in the prices of commodities.

Sir Francis Webster on the effects of war.

272. "The first thing," said Sir Francis Webster, an eminent business man of long experience, at the last meeting of the British Association, "to break the calm .... and apparently to arrest what seemed an endless downward course of prices was the American-Spanish war. The first thing to move the price of such articles as cotton and leather goods—I speak of such things as I know—was the war demand for these. The Boer war and Russo-Japanese war followed in quick succession. There was feverish activity in many articles, with great consumption and great waste, and great displacement of capital. The stocks of many articles have never recovered the drain on them. In our own local business, stocks of heavy linen goods, that had lain and weighed down the market for years, were swept out. The same thing happened with heavy cotton goods, and the demand for saddlery could hardly be met. The same cause must have produced similar effects in many other branches of trade .... The higher level is in evidence in every kind of product, whether in raw material or manufactured goods. The security begotten of long peace has been lost, and there seems little prospect of its early recovery. Warlike expenditure has been growing apace. Nothing nearer to a state of war, without war, has perhaps ever been seen. Alarm follows alarm. Expenditure tops expenditure in the most onerous of all peace pursuits in the gigantic preparation for war."

Wastage of capital in the present war in Eastern Europe.

273. The wastage of capital may be illustrated from the present war in Eastern Europe. Allowing for food and ammunition consumed by the belligerents and the property destroyed by them, together with the additional expenditure on some 400,000 men who were already under arms before mobilisation, the weekly loss of capital comes to a million sterling. Moreover, every able-bodied man, killed or wounded in war, constitutes another loss of capital. A recent writer has assessed the loss of each man at £250, assuming that the average conscript can earn £25 a year, and that his life is worth 10 years' purchase. The following is the estimate of the cost of the belligerents, excluding the loss of lives, and the total existing debt of each State, as published in the "Statesman's Year-Book."

——	Men in the field.	Estimated monthly cost (30 days).	Total existing debt.
		£	£
Bulgaria	300,000	4,500,000	24,407,976
Servia	200,000	3,000,000	26,937,320
Montenegro	40,000	600,000	250,000
Greece	60,000	900,000	27,343,240
Turkey	500,000	7,500,000	131,173.879

Increased expenditure on armaments.

274. The destruction of wealth involved in many recent wars has been accompanied by an enormous increase of expenditure on armaments throughout the world. This involves a double waste from the standpoint of the production of marketable goods. On the one hand, it has removed millions of able-bodied workers from productive employments into the military and naval services. On the other, it has caused millions of industrial workers to expend their labour in making military and naval apparatuses instead of making the goods upon which the money spent on armaments would have been spent had it been left in the pockets of the tax-payers or been applied by governments to productive services. Thus war and militarism, involving expenditure upon an increasing scale, are responsible, for no inconsiderable part, of the rise of prices by the waste of the productive forces they involve.

OTHER CAUSES.

Influence of industrial and Commercial combinations.

Struggle to market goods.

Expenditure on luxuries.

Sinking of capital and labour in new countries.

275. The influence of industrial and commercial combinations upon the volume of production should also be noticed. The rapid rise of Trusts, Cartels, Conferences, Pools and other forms of trade combination or agreement must also have contributed to the rise of prices. The normal result of the formation of combines is to restrict the rate of production, making it lower than it would have been under the influence of free competition. Then, there is a great and growing waste involved in the struggle to market the goods that are produced. In every country there is a rapid increase in the proportion of persons engaged in trying to sell the goods. Nor can we ignore the heavy expenditure upon luxurious goods and services which is absorbing an increasing share of the general income in the richest countries. The sinking of a large and growing proportion of newly created capital and labour of the world in new and backward countries, means the application of a vast amount of productive energy to kinds of work, the full fruitfulness of which takes a long period of time to mature. If several hundreds of millions of fresh capital each year, which might have gone to promote agriculture and manufactures, have gone into laying the deep foundations for a future career of agriculture and manufacture in backward lands, we should expect that this restriction of immediate productivity would have some not inconsiderable influence in raising prices.

Immigration.

276. The rapid growth of over-seas investments has involved immigration during the last fifteen years from Europe into the countries of North and South America and elsewhere of enormous masses of manual labourers, which means a large transfer of working population from food production in Europe on a low standard of food consumption to industrial employment in America upon a far higher standard of food consumption.

Construction of Railways and other auxiliary works.

277. The mileage of new railways now under construction in agricultural countries is greater than it has been for many years, and the influx of settlers is on a vast scale. The progress of railway construction at such a rapid rate is being followed by other auxiliary works, namely, the building of farm houses, the laying out of towns, the construction of roads, etc., and it is no wonder that consumption should increase more rapidly than production.

CHAPTER IX.

Examination of the supply of and demand for some important commodities.

Special features in the rise in prices of particular commodities.

278. Apart from the causes mentioned in the last three chapters, which affect prices of commodities generally, there are, it is well known, causes which affect particular commodities or classes of commodities. Otherwise, the variations in the price level of the different commodities would have been the same instead of being widely different, as they are. In dealing with the causes which have led to the rise of prices, it is, therefore, necessary to examine each commodity separately. It will, however, neither be convenient, nor interesting, to deal exhaustively with all the commodities included in the long price-list published with the report; and it will be sufficient if the causes affecting some important commodities only are explained. The commodities dealt with below are:—rice, wheat, sugar, cotton, jute, hides and skins and ghee and milk.

Rice.

India's surplus of rice.

279. India, including Burma, produces a little less than half the world's output of rice and has, in normal years, a large surplus available for other countries. More than three-fourths of this surplus is, however, ordinarily contributed by Burma, though it produces only slightly more than one-tenth of the total amount grown in India. The area under the cultivation of rice in Burma is growing rapidly every year and it can generally spare four-fifths of its rice for other countries and for India proper, when the supply is deficient there. India proper grow an enormous quantity of rice, but in the absence of any large expansion of the growth, consumption is overtaking production. In favourable years, it can spare for other countries only about 2 per cent. of its total production, but in unfavourable years the production is insufficient to meet even its own internal demand, so much so that a large quantity has to be imported from Burma to make good the deficiency. In India proper, by far the largest quantity is grown in Bengal, but the area is not expanding, jute being the more favourite crop with the cultivator. A considerable portion of the surplus of India, as a whole, is usually exported to Europe, where it is used for food and for the manufacture of spirits and starch, and has to compete with the rice of other countries and with a number of other grains, namely, oats, rye and maize, and even with beet and potatoes. The other important countries to which Indian rice is exported are Ceylon, the Straits, Mauritius, Reunion, East Africa, Brazil and the West Indies, where it forms the chief article of food of the Chinese and the other Asiatic races. Japan also sometimes imports Indian rice, although it grows a considerable quantity itself, but when the crops are deficient it has to fall back upon the rice grown in Burma and other eastern countries. The demand for Indian rice in foreign countries is thus always fairly large and the prices in India depend more on the Indian supply than upon fluctuations in the foreign demand. In Burma, which, as mentioned above, usually supplies the greater part of the surplus available in India for export, the monsoon rains never fail and the rice harvest is, generally, good. But a failure of the monsoon in India, by no means an uncommon phenomenon, diminishes the supply in India proper to so substantial an extent that a demand for rice from Burma is at once created at prices to which foreign markets do not respond, and immense quantities of Burma rice which would, in an ordinary year, be exported to foreign countries are deflected to the Indian markets. There may, thus, be a rise in the price in India even in the absence of a corresponding rise in the external markets.

Statistics of outturn, exports and imports.

280. The following statement shows the production, export, import, and net available supply of rice in British India, excluding Burma, and the index numbers of the Rupee price, year by year, from 1890-91 to 1911-12:—

In Thousands of Maunds.

Years.	Total production.	Total imports.	Total Exports.	Net Exports.	Net available supply including wastage and requirements for seeds.	Index No. of column 2.	Percentage of column 6 to column 2.	Percentage of column 4 to column 2.	Index Nos. of Rupee prices. (a)
1	2	3	4	5	6	7	8	9	10
1890-91 . . .	68,21,63	20,41	1,38,95	1,18,51	67,03,12	92	98·3	2·0	96
1891-92 . . .	56,58,07	10,90	1,42,66	1,31,76	55,25,31	76	97·7	2·5	107
1892-93 . . .	75,70,01	25,16	1.27.91	1.02.75	74,67,26	102	98 6	1·7	105
1893-94 . . .	82,44,29	73,15	1,18,84	45,69	81,99,23	111	99·4	1·4	98
1894-95 . . .	88,11,35	60,17	1,53,38	92,91	87,18,41	119	98·9	1·7	91
1895-96 . . .	74,17,48	31,66	1,41,25	1,09,59	73,04,89	100	98·5	1·9	100
1896-97 . . .	50,08,72	85,65	1,20,25	34,60	49,74,12	67	99·3	2·4	131
1897-98 . . .	87,68,09	1,63,68	1,15,76	—47,92	88,16,01	118	100·5	1·3	108
1898-99 . . .	91.35,86	85,23	1,61.17	75,98	90,59,92	123	99·2	1·8	95
1899-00 . . .	72,00,10	1,79,73	1,42,93	— 36,80	72,36,90	97	100·5	2·0	111
1900-01 . . .	74,32,05	2,78,49	1,34,50	—1,43,99	75,76,04	100	101·9	1·8	113
1901-02 . . .	68,70,64	1,81,45	1,32,49	—48,96	69,19,60	93	100·7	1·9	166
1902-03 . . .	81,47,74	1,05,88	1,43,63	37,75	81,09,99	110	99·5	1·8	104
1903-04 . . .	78,22,72	45,45	1,57,34	1,11,89	77,10,83	105	98·6	2·0	99
1904-05 . . .	77,20,97	73,14	1,59,55	86,41	76,31,56	104	98·9	2·1	108
1905-06 . . .	74,50,11	1,12,94	1,56,07	43,13	71,06,98	100	99·4	2·1	130
1906-07 . . .	75,23,62	2,01,61	1,39,60	—62,01	75,85,63	101	100·8	1·9	145
1907-08 . . .	59,95,06	2,36,73	1,22,25	—1,14,48	61,09,51	81	101·9	2·0	161
1908-09 . . .	67,66,33	2,85,88	1,13,61	—1,72,27	69,38,60	91	102·5	1·7	138
1909-10 . . .	81,13,45	2,40.87	1,31.01	— 1,09,83	85,23,28	113	101·3	1·6	122
1910-11 . . .	82,36,49	1,33,69	1,52,26	18,57	82,17,92	111	99·8	1·8	126
1911-12 . . .	79,51,38	56,03	1,88,57	1,32,54	78,18,84	107	98·3	2·4	140

(a) The crop of any official year affects the price for the next calendar year (*i.e.*, the crop for 1890-91 would affect 1891 prices); therefore, in this column the index numbers commence from that of 1891 and end with 1912.

Course of prices of rice.

281. The harvest in India in 1891 was very poor and prices naturally rose in 1892. There was too a failure of the harvest in Europe, thereby increasing the demand for Indian rice as prices of the cheaper grains of Europe rose so high as to prevent them from competing with Indian rice in the manufacture of spirits and starch. In the next three years, the total outturn of rice in India rapidly increased and there was a gradual fall in prices, until in 1895 it reached a level several points below the average of the preceding five years. The fall was accentuated by a decrease in the demand from Europe where, owing to an abundant harvest, the cheaper grains competed successfully with Indian rice notwithstanding the lower level of prices. In 1896, there was a widespread failure of the crops in India and prices rose unusually high in 1897, to which the prices in Europe did not respond. The deficiency in India was met by large imports, chiefly from Burma, which amounted to no less than twenty-five millions of maunds in the two years. In 1897 and 1898, the Indian harvests were good specially in the latter year and prices gradually fell very low, notwithstanding a large demand from Japan to supplement a deficient harvest there. In 1899, the rice crop was again deficient though not to such a serious extent as in 1896, but the deficiency in the other crops was serious and the result was a large increase in prices in 1900. Exports fell off, while imports from Burma and other countries rose to eighteen millions of maunds. In 1900 and 1901 also, the crops were below the normal, and exports continued to be restricted while there was a large increase in the imports from Burma and other places and prices continued high. In 1902, there were bumper crops and in the two following years the crops were about normal. Exports were stimulated specially in consequence of the failure of crops in Japan and Southern China and imports gradually fell and prices continued to fall until 1904, when they dropped below the level of the basic period, notwithstanding the fact that there was an exceptionally heavy demand in that year

from Japan where, in consequence of the Russo-Japanese war, enormous quantities of rice were imported from Burma, Bangkok and Saigon. In 1905 and 1906, the rice harvest in India was below the normal, but not to a serious extent. Still there was an enormous increase in prices in 1906 and 1907. This was the result not so much of a failure of the rice harvest as of other crops in considerable parts of India, chiefly bajra, jowar, ragi and maize, which led to the substitution of rice as the main article of food in many parts of India where the other grains are ordinarily used. This is clear from the fact that the imports of rice from Burma to India again assumed large dimensions in those years. In 1907, there was a widespread failure of crops in considerable parts of India and the price of rice in 1908 was unusually high, the level reached in that year being the highest on record. The import from Burma was also highest in 1908-09, and higher than most other years in 1907-08 and 1909-10. The years 1909 and 1910 were very good all round and prices fell, but still the supply was not sufficient to meet the demand in 1909-10, as would appear from the fact that the imports of that year exceeded the exports by a considerable amount. The outturn in 1911 was again short and prices have risen again in 1912, more specially in consequence of a shortage in China, Japan, Saigon, Java and the Phillippines. It seems that India proper is gradually ceasing to be an exporter of rice and approaching the stage when it will have to obtain supplies of it regularly from Burma and other countries. It should be no wonder, then, that the prices of rice in India should be rising higher and higher.

WHEAT.

India's surplus of wheat.

282. With the extension of irrigation, the cultivation of wheat in India is growing year by year, but the total quantity of wheat produced is less than one-third the total production of rice in British India, excluding Burma. The consumption of wheat in India is, however, restricted to certain special areas and to the well-to-do classes in some of the other areas. India is thus able to spare 10 to 15 per cent. of its total production of wheat for other countries, unless unfavourable agricultural conditions reduce the supply to an abnormally low level, when not only do exports to foreign countries shrink to very small dimensions but the supply also becomes insufficient to meet the internal demand, and consumers of wheat have to take recourse to rice and other kinds of food-grains. Foreign wheat can hardly ever compete with the other grains of India, and is, therefore, seldom imported to any substantial extent.

European demand exercises important influence on wheat prices.

283. The foreign demand for Indian wheat is essentially different from that for Indian rice. Indian wheat is ordinarily inferior to the wheat grown in Russia, the United States, Argentina and the other great wheat-exporting countries of the world. It does not actually compete with the wheat of these countries but is required outside India only to supplement deficiencies. Apart, therefore, from internal conditions affecting the supply, the exports are subject to violent fluctuations arising out of variations in the supply in other countries. In one year, the demand will be very large and, even if the Indian harvest is abundant, prices will rise: in the following year, the foreign demand may be largely reduced owing to abundant supplies from Russia, the United States and other exporting countries, and, even if the harvest in India be deficient, prices might fall. The European demand, therefore, exercises a very important influence on the price of Indian wheat.

Statistics of production and Indian exports and imports.

284. The following statement shows the production, export, import and net available supply of wheat in British India excluding Burma, and the index numbers of the gold price of wheat in India, year by year, from 1891 to 1911. The wheat harvest being usually gathered towards the end of the financial year the produce actually comes into the market and is exported in the next. The outturn shown in the table, against each financial year, is, therefore, the actual production of the preceding year. The production of wheat in the different countries of the world during 1890-1911 is also shown in the second table.

In thousands of maunds.

Years.	Total production.	Total Imports. (*a*)	Total Exports. (*a*)	Net Exports.	Net available supply including wastage and requirements for seeds.	Index No. of column 2.	Percentage of column 6 to column 2.	Percentage of column 4 to column 2.	Index Nos. of Gold Prices.
1	2	3	4	5	6	7	8	9	10
1891	22,15,95	4,87	4,24,91	4,20,04	17,95,91	109	81·0	19·2	110
1892	18,34,54	1,59	2,16,21	2,14,62	16,19,92	90	88·3	11·8	110
1893	21,05,12	1,29	1,78,11	1,76,82	19,28,30	103	91·6	8·5	95
1894	21,61,29	3,30	1,06,46	1,03,16	20,58,13	106	95·2	4·9	75
1895	18,84,90	2,43	1,51,03	1,48,90	17,36,00	92	92·1	8·0	82
1896	15,92,65	8,37	39,23	30,86	15,61,79	78	98·1	2·5	104
1897	15,38,63	1,11	44,23	43,12	14,95,51	75	97·2	2·9	148
1898	21,58,14	12	2,81,35	2,81,23	18,76,91	106	87·9	13·0	115
1899	21,48,04	4.45	1,45,47	1.41,02	20,07,02	105	93·4	6·8	107
1900	16,15,05	8,73	12,80	4,07	16,10.98	79	99·7	0·8	138
1901	20,31,25	2,91	1,12,48	1,09,54	19,21,71	100	91·6	5·5	124
1902	18,23,24	29	1,56,61	1,56,32	16,66,92	89	91·4	8·6	116
1903	22,11,94	33	3,72,07	3,71,74	18,40,20	108	83·2	16·8	107
1904	25,91,75	35	6,08,34	6,07,99	19,83,76	127	76·6	23·5	102
1905	21,22,10	6,32	2,75,28	2,68,96	18,53,14	101	87·3	13·0	114
1906	22,68,04	3,32	2,37,87	2,34,55	20,33,19	111	89·7	10·5	127
1907	22,25,79	3,80	2,58,01	2,54,21	19,71,58	109	88·6	11·6	134
1908	14,65,45	8,12	43,59	35,47	14,29,98	72	97·6	3·0	170
1909	18,91,60	24	3,02,92	3,02,68	15,88,92	93	84·0	16·0	159
1910	23,09,83	11	3,64,28	3,64,17	19,45,66	113	84·2	15·8	138
1911	23,60,77	51	3,94,79	3,94,28	19,66,19	116	83·3	16·7	126

(*a*) Figures are for official years ending 31st March of the following year.

World's outturn of Wheat, 1890—1911.

(In millions of bushels.)

Year.	United States of America.	Russia.	France.	India.*	Austria-Hungary.	Italy.	Germany.	Spain.	Canada.	Argentina.	Other countries.	Grand Total.	Index numbers.
1890 . . .	399	220	339	304	217	127	95	70	39	42	352	2,204	89
1891 . . .	612	254	219	252	189	141	86	71	63	32	513	2,432	98
1892 . . .	516	358	311	289	202	116	116	82	50	36	426	2,482	101
1893 . . .	396	402	280	296	212	135	110	95	43	57	473	2,559	104
1894 . . .	460	418	348	259	201	122	111	106	45	80	511	2,661	108
AVERAGE .	**477**	**338**	**299**	**280**	**204**	**128**	**104**	**85**	**48**	**49**	**455**	**2,467**	**100**
1895 . . .	467	377	340	219	210	118	117	81	57	60	547	2,593	104
1896 . . .	428	365	340	211	206	145	126	72	41	41	531	2,506	102
1897 . . .	530	286	247	296	127	87	120	95	56	25	367	2,234	91
1898 . . .	675	408	363	295	189	137	133	121	68	47	563	2,942	119
1899 . . .	547	394	364	222	201	138	111	101	60	105	492	2,768	112
AVERAGE .	**529**	**366**	**331**	**249**	**187**	**125**	**127**	**94**	**56**	**56**	**488**	**2,608**	**106**
1900 . . .	522	396	326	279	195	131	141	101	54	102	391	2,641	107
1901 . . .	748	402	311	250	181	165	92	137	91	75	504	2,956	120
1902 . . .	670	561	328	303	235	136	113	134	101	56	423	3,090	125
1903 . . .	638	572	364	356	227	184	131	129	85	104	420	3,190	129
1904 . . .	552	622	299	291	204	168	140	95	74	130	589	3,164	128
AVERAGE .	**626**	**507**	**326**	**296**	**208**	**157**	**129**	**119**	**81**	**93**	**466**	**3,008**	**122**
1905 . . .	693	568	335	311	228	161	136	93	109	151	542	3,327	135
1906 . . .	735	451	325	305	209	176	145	141	128	135	624	3,434	139
1907 . . .	634	438	377	201	185	178	128	100	93	156	639	3,129	127
1908 . . .	665	489	318	260	231	152	138	120	112	192	496	3,173	129
1909 . . .	737	711	356	317	186	190	138	144	167	156	531	3,633	147
AVERAGE .	**693**	**531**	**342**	**279**	**220**	**171**	**137**	**120**	**122**	**158**	**566**	**3,339**	**135**
1910 . . .	695	699	268	324	255	153	142	137	150	131	697	3,651	148
1911 . . .	621	447	315	313	252	192	149	148	216	146	688	3,517	143

* Years indicate financial years ending on the 31st March of the following year.

Course of prices of wheat.

285. In 1891, the wheat harvest in India was exceptionally good, and to meet a strong demand from Europe in consequence of the failure of the crops in America and Russia, more than 18 per cent. of its total produce was exported, and prices in India were high. The United States had two most magnificent crops in succession in the next two years and there was consequently a heavy decline in the demand for Indian wheat in European markets. The Indian harvest in 1892 was poor, but owing to a decline in the European demand prices continued at the level of the previous year. In 1893 and 1894, there was a further decline in the European demand, which, coupled with comparatively good harvests in India, brought down the price, the average price in 1894 being the lowest on record. In 1895, the Indian crops were below the normal, and out of the restricted supply a large quantity was exported to foreign countries, and prices rose in India. The two following years were exceptionally unfavourable for the Indian wheat harvest, and prices rose very high, operating as a check on exports which accordingly dwindled to very small dimensions. The crops in 1898 and 1899 were very good, and notwithstanding heavy exports to foreign countries, prices fell, though the level in 1899 was still higher than the average of the basic period. The wheat crops in India failed again in 1899-1900, and very little wheat was exported from India in 1900. As a consequence of the diminished supply, there was a considerable rise in the prices in India again in 1900. In the following year, a decline in the European demand brought down the prices again, although the Indian harvest was not particularly good. In 1902, the production in India was short. Harvests in Europe, on the other hand, were exceptionally good and as a result prices in India fell in 1902 more than 6 per cent. In 1902-03, the crops were above normal and the year following was a record year for the wheat harvest in India, the outturn having been 27 per cent. above the basic period. The harvest in Europe was a bumper one in 1903. In 1904, however, it was poor, and enormous quantities of wheat were exported from India, where prices fell almost to the level of the basic period. During the next three years the production of Indian wheat was above normal, but still there was a steady rise in prices in sympathy with the rise in European markets. In 1907-08, the wheat harvest practically failed in India, and prices in 1908 rose 27 per cent. over that of the previous year, the exports to other countries being practically stopped altogether in that year for a time. The crops in 1908-09 were better, though much below normal. Still, as the harvests in Europe and America were the highest on record, prices in India fell in 1909 more than 6 per cent. During the two years 1910 and 1911 the wheat harvest throughout the world was good, and there was a steady decline in prices. The price of wheat in India has, with some occasional falls, been rising in recent years, notwithstanding an increase in the supply available for internal consumption. This is explained by the rise in world markets. It is, therefore, safe to conclude that with the growing prosperity of the country, the demand for wheat is increasing, and that wheat is replacing the cheaper grains in the dietary of the people.

SUGAR.

The present position of the Sugar industry.

286. During the period under enquiry, prices of food-grains—cereals and pulses—have risen more than 40* per cent., but the price of Indian crude sugar, known as "gur," has risen only 26 per cent. and the price of sugar as a class only 9 per cent. Sugar has thus not at all shared in the general appreciation of food stuffs, probably because of the immense growth of the imports of foreign sugar, in the prices of which there has been a substantial decrease. The power of India to absorb immense quantities of crystalised sugar in addition to the cruder sugar of its own production has become increasingly striking year by year. Still it has not been possible to improve the inefficient methods of the

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*Average of quinquennium 1908-1912.

indigenous industry, so as to enable its product to compete with the imported article. India's potentiality as a sugar producer is hampered by the small and scattered nature of the holdings, the impracticability, except perhaps in newly reclaimed areas, such as canal colonies, of concentrated cultivation around the central factory, and the peculiarities of demand which has four-fifths of its volume restricted to molasses and low grade sugars produced by wasteful and primitive methods and commanding prices out of all proportion to their refinery values. Thus even in a year of abnormally high prices, the demand for refined sugar has been strong. It is no wonder, then, that there should be a continuous decline in the acreage under cultivation of cane in this country. Ten years ago imported sugar formed only 5·9 per cent. of India's sugar supply; now it forms more than 20 per cent. Though India is probably the largest producer of sugar in the world, as would appear from the following statements showing the world production of sugar, and though its crop is equivalent to about 5 million tons of potential sugar, still having regard to the fact that the population of India exceeds 300 millions, that sugar, as an article of diet, is well suited to the Indian and that there has been a contraction of its cultivation of sugar, the rapid, continuous and enormous expansion of the imports of sugar is not striking.

World's production of Cane Sugar, 1895 to 1910.

In thousands of tons of 2,240 pounds each.

Year.	India.	Cuba.	Java.	United States of America including Hawaii, Louisiana, Porto Rica and Texas.	Brazil.	Mauritius.	Formosa.	Philippines.	Other countries.	TOTAL.
1	2	3	4	5	6	7	8	9	10	11
1895 . .	2,986	240	605	505	225	140	..	230	959	5,890
1896 . .	2,440	220	498	580	176	153	..	202	1,018	5,287
1897 . .	2,944	314	531	585	200	122	..	178	956	5,830
1808 . .	3,041	345	689	557	154	186	..	93	1,009	6,077
1899 . .	2,421	309	722	411	193	157	..	63	981	5,287
AVERAGE .	**2,767**	**286**	**609**	**534**	**190**	**152**	..	**153**	**985**	**5,674**
1900 . .	2,745	636	710	687	308	175	..	55	1,102	6,418
1901 . .	2,591	850	767	710	319	148	..	79	1,171	6,698
1902 . .	2,417	999	843	821	188	150	..	90	1,100	6,638
1903 . .	2,571	1,040	886	706	197	221	35	84	1,128	6,868
1904 . .	2,730	1,163	1,009	896	195	142	49	107	1,108	7,399
AVERAGE .	**2,617**	**938**	**843**	**770**	**247**	**167**	**42**	**83**	**1,122**	**6,804**
1905 . .	2,404	1,179	991	915	275	188	64	146	1,228	7,420
1906 . .	2,655	1,428	1,012	846	215	220	81	146	1,200	7,803
1907 . .	2,368	962	1,156	1,017	180	170	68	150	1,166	7,237
1908 . .	2,067	1,514	1,242	1,093	248	206	122	129	1,207	7,828
1909 . .	2,473	1,804	1,201	1,106	253	245	160	120	1,277	8,642
AVERAGE .	**2,394**	**1,377**	**1,120**	**1,001**	**234**	**206**	**99**	**138**	**1,216**	**7,786**
1910 . .	2,506	1,900	1,175	1,116	310	190	230	150	1,351	8,928

World's production of Beet and Cane Sugar, 1895 to 1910, and Index Numbers, the average of 1895—1899 being taken as 100.

In thousands of tons of 2,240 pounds each.

Year.	BEET. SUGAR.									INDEX NUMBERS.		
	Germany.	Austro-Hungary.	Russia.	France.	United States of America.	Other Countries.	Total Beet Sugar.	Total Cane-Sugar.	Total Beet and Cane-Sugar.	Beet Sugar.	Cane-Sugar.	Total.
1	2	3	4	5	6	7	8	9	10	11	12	13
1895	1,615	791	712	668	29	507	4,322	5,890	10,212	87	104	96
1896	1,837	934	729	752	38	671	4,961	5,287	10,248	100	93	97
1897	1,853	832	739	821	40	594	4,879	5,830	10,709	99	103	101
1898	1,722	1,051	776	830	32	611	5,022	6,077	11,099	101	107	104
1899	1,790	1,120	900	970	73	755	5,608	5.287	10,895	113	93	102
AVERAGE .	**1,763**	**946**	**771**	**808**	**42**	**628**	**4,958**	**5,674**	**10,633**	**100**	**100**	**100**
1900	1,984	1,094	919	1,114	77	879	6,067	6,418	12,485	122	111	118
1901	2,305	1,302	1,099	1,124	163	928	6,921	6,698	13,619	139	119	129
1902	1,762	1,058	1,256	833	195	659	5,763	6,638	12,401	116	118	117
1903	1,928	1,168	1,207	804	215	781	6,103	6,868	12,971	123	122	122
1904	1,598	889	954	622	216	654	4,933	7,399	12,332	99	130	116
AVERAGE .	**1,915**	**1,102**	**1,087**	**899**	**173**	**780**	**5,957**	**6,804**	**12,762**	**120**	**121**	**120**
1905	2,418	1,510	969	1,090	279	957	7,223	7,420	14,643	145	132	138
1906	2,239	1,344	1,440	756	432	943	7,154	7,803	14,957	144	138	142
1907	2,130	1,425	1,410	728	414	877	6,984	7,237	14,221	141	129	134
1908	2,083	1,399	1,257	807	380	1,065	6,931	7,828	14,759	140	138	146
1909	2,027	1,257	1,145	801	458	916	6,604	8,642	15,246	133	153	143
AVERAGE .	**2,179**	**1,387**	**1,244**	**836**	**393**	**940**	**6,979**	**7.786**	**14.765**	**141**	**137**	**140**
1910	2,572	1,600	2,075	750	510	1,069	8,576	8,928	17,504	173	159	166

Imports of foreign sugar into India and the course of sugar prices.

287. The quantity of sugar imported into India from foreign countries in the earlier years of the period under enquiry was slightly over 2 million cwts., practically all of which was cane sugar from Mauritius, China, Java, and the Straits. With the increase in the production of beet sugar in Europe, cane sugar of Mauritius was gradually thrust out of the European markets and the Mauritius sugar planter found himself obliged to turn to the Indian market. Mauritius sugar was consumed in Western India, where local production was on an insignificant scale, the climate being unsuitable. Northern Indian sugar could not compete with the imported article in Western India, in consequence of the cost of transport. At the same time European beet sugar also began to be imported into India in larger quantities. The imports from Germany first assumed importance in 1895-96, and Austria-Hungary entered the field in the following year, and by 1897-98 the Indian market was flooded with the bounty-fed beet sugar from these two countries. They were forced to find an outlet for their sugar in the markets of the East by reason of the closing of the United States markets by the Dingley tariff which imposed a countervailing duty equal to the export bounty, and of the competition of France in the English markets due to enhanced export bounty on French sugar. During these years, the imports from Mauritius and Java also increased, but sugar from China and the Straits was not able to find an expanding demand in the Indian market. To avert the danger threatening the sugar industries of India through the rapid growth of the import of the bounty-fed sugar from the two countries mentioned above, the Government of India, on the lines of the action taken in the United States, imposed, in addition to the ordinary import duty, an additional duty equivalent to the bounties granted to the exporters of beet

sugar in the countries where it was produced. The imposition of this duty was followed by an immediate and considerable reduction in the imports of beet sugar, and the imports of cane sugar from Mauritius and other countries also declined in 1899-1900 owing to a rise in prices.

288. In 1900, a cartel system was established in Germany, copied from that of Austria, and as a result, there was a heavy decline in prices. In consequence of this as well as of two consecutive bad seasons for cane in the Punjab, there was a revival of the imports from Austria-Hungary and Germany, and in 1901-02 the imports from Austria-Hungary surpassed those from Mauritius and the total imports of beet sugar exceeded those of cane sugar for the first time in that year. Sugar imported into Karachi could be laid down into the Punjab more cheaply than Indian sugar from other provinces, the railways finding it expedient to concede favourable terms for carrying sugar up-country from the ports, as the wagons going to the ports with Indian produce must be brought back thence hundreds of miles, empty or full; thus, it was profitable to accept sugar at low rates for the upward run from the sea-board. The proceedings of the Brussels Sugar Convention in March 1902 revealed the bounties created by the operations of the trade conventions known as cartels, formed in Germany and Austria-Hungary, and to countervail these bounties further additional duties were imposed by the Government of India in that year on sugar imported from the two countries. The additional duties virtually extinguished the Indian import trade in Austrian and German sugar, but there was no increase in the production of sugar in India and the only result was a large increase in the imports of cane sugar from Mauritius and Java. In September 1903, the parties to the Brussels Convention agreed to abolish bounties, and the Government of India remitted the countervailing duties on the sugar produced in the countries which agreed to abolish bounties. In 1904, there was an extensive failure of the beet crop in Europe owing to drought, and this was imperfectly compensated by a large yield of cane sugar and it accordingly resulted in a large increase in prices. The remission of countervailing duties revived the trade in December 1903 in Austrian and German sugar, but the growth of the imports from Java was greater. The Reciprocity Convention of 1904 between the United States and Cuba gave a preference to Cuban sugar, and the recovery of the sugar industry of that island has deprived Java sugar of its assured position in the American market. The exports to the United States have accordingly declined and the imports to India have increased steadily since then. The imports into India were 225,000 cwts. in 1900-01, 8,357,000 cwts. in 1910-11 and 7,955,000 cwts. in 1911-12.

Growth of imports of Java sugar since 1906.

289. In 1907, there was a shortage of crops in Germany and Austria-Hungary and this was followed by a rise in the price level. In 1908, the beet crop in Europe and the cane crop in Cuba were both short and there was a large increase in the world's price of sugar. The Indian prices were further enhanced by a shortage in the Indian crop which was the lowest on record. In 1909, there was a further rise due to a general shortage of the beet crop on the continent of Europe. Prices in India rose to their highest level in 1910, notwithstanding the heavy imports from Java and Mauritius. The imports from Java have largely exceeded those from any other country since 1906-07. A resuscitation of the Formosa industry by the Japanese and the free import of sugar from the Philippines into the United States of America, allowed under the Payne tariff, have restricted the activity of Java in the further East, and the large products of her cheap labour and the latest methods of scientific manufacture are being diverted to India.

COTTON.

Demand for Indian cotton in other countries.

290. India produces roughly about one-eighth of the world's requirements of cotton. The manufactures of the Indian mills are chiefly confined to the coarser kinds of yarn and piece-goods, while India consumes a large quantity of cotton manufactures of finer qualities imported from abroad, mainly the produce of Lancashire. India also exports a large quantity of both raw material and cotton manufactures to other countries. China is its chief customer in regard to yarns, while Ceylon, the Straits, Aden and East Africa consume the larger share of its manufactured piece-goods available for export. The fluctuations in the price of cotton thus depend partly on the relative abundance or scarcity of the yield in India and partly on the demand from other countries, which, again, is largely influenced by the crop in the other cotton-growing countries of the world, chiefly the United States, Egypt and China. The demand for Indian cotton has been largely influenced by changes in the course of the trade in Indian cotton during the period under enquiry. Prior to the period under enquiry, England was the country which took most of the Indian cotton, not so much for local manufacture, for the competition of the Indian mills had already materially reduced the spinnings and weavings for which this short staple cotton was required, as for distribution over the continent of Europe where the coarser kinds of cotton goods are still made for the use of the peasantry and the artisans. Gradually, the shipments to England declined, as direct communication was established with the consumers of the continent. Then Japan entered the market and, in consequence of the exceptional development of her spinning industry, speedily became a much larger consumer than any other country. As the Japanese mills increased their spinning capacity, the demand in England for short staple cotton continued to decline, Japanese yarn and cloth of the coarser kinds gradually ousting English yarn and cloth of the same class in the markets of the Far East. Another reason for the contraction of the demand in Europe was the growth of the production of cotton in the United States, where an abundance of the supply so effectively reduced the price of the fibre as to make the use of that cotton economical in comparison with Indian cotton.

World's production of cotton.

291. The following statement shows the world's production of cotton from 1900 to 1910 and the index numbers of the gold prices ruling in India. Statistics of the outturn of previous years for the other countries are not available.

World's Cotton Crop from 1900 to 1910 (in thousands of bales) and Index Numbers, the average of 1900—1904 being taken as 100.

Year.	United States of America.	India. (a)	Egypt.	China.	Asiatic Russia.	Brazil.	Mexico.	Other countries.	GRAND TOTAL.	Index Numbers of gold prices.
1900 . .	10,123	1,810	1,125	1,192	633	209	101	249	15,442	104
1901 . . .	9,510	1,711	1,320	1,200	482	210	103	330	14,866	91
1902 . . .	10,631	2,069	1,210	1,200	426	305	104	317	16,262	91
1903 . . .	9,851	2,029	1,349	1,200	529	285	169	323	15,735	98
1904 . . .	13,439	2,322	1,305	1,200	504	220	253	357	19,600	117
AVERAGE .	**10,711**	**1,988**	**1,262**	**1,198**	**515**	**246**	**146**	**315**	**16,381**	**100**
1905 . . .	10,577	2,036	1,231	1,200	539	270	227	377	16,457	98
1906 . . .	13,274	2,649	1,428	1,200	688	365	270	397	20,271	110
1907 . . .	11,108	1,795	1,486	1,200	549	348	70	469	17,025	106
1908 . . .	13,242	2,210	1,398	1,200	546	231	140	567	19,534	107
1909 . . .	10,005	2,033	1,000	1,200	543	277	90	640	16,388	117
AVERAGE .	**11,641**	**2,265**	**1,309**	**1,200**	**573**	**298**	**159**	**490**	**17,935**	**108**
1910 .	11,609	2,338	1,571	1,200	688	270	200	580	18,456	146

(a) Years represent official years.

Course of prices of cotton.

In 1900, prices in India rose in sympathy with a high level of prices in all other countries. There was, consequently, a great contraction in the exports of Indian cotton to Japan, where the spinners preferred American to Indian cotton, as the former was a better value at the comparative level of prices. The cotton crop of the world in 1900 was fairly good and prices fell in all countries in 1901. There was a revival of Indian exports to Japan and other countries, and Indian cotton regained its position in Japanese markets. In 1901, the crop was poorer than in the previous year and prices rose in 1902 in all other countries: in India also prices rose at the ports but, taking upland prices into account as well, there was no change in the price level. In 1902, the crop was good everywhere but prices in all countries rose in 1903 owing to the operations of speculators in cotton. In 1903, the American crop was short, and prices rose all the world over to a considerable height in 1904, and there was an active demand for Indian cotton in other countries. The American crop, in 1904, was of unprecedented magnitude, and the Indian crop was also abundant and the fall in prices in 1905 was marked throughout the world—prices in India having dropped 19 points. The year 1905 again proved a bad year for American and Egyptian cotton and there was a large increase in the prices in 1906. The crops were, that year, unusually good in most of the countries of the world which grew cotton, but speculation was rife and prices did not fall in 1907 as much as might have been expected from the abundant supply—particularly because it was anticipated that there would be a cotton famine in 1907. The anticipation was fulfilled and the crop of 1907 was a very poor one throughout the world except in Egypt. Speculation had already kept the prices at a high level and instead of an expected rise in prices in 1908, there was a fall in most countries of the world. Prices in India, however, remained almost at the level of the previous year, being only one point higher. In 1908, the world's crop was again fairly good, but still there was a rise in the prices of 1909. In 1909, the American and Egyptian crops were very poor, though the Indian crops were considerably above the average, and prices rose very high in all countries, the rise in India, notwithstanding an abundant crop, being no less than 25 per cent. over the previous year. In 1910 also, the outturn was not good, except in Egypt, and prices continued to rise higher in 1911, thus showing that the price of Indian cotton is governed now more by the world's crop than that of India itself.

JUTE.

Jute—a monopoly of India—and prices depend mainly on the harvest in India.

292. Jute being a monopoly of India, the prime factor that determines its price in the world markets is the outturn of the crop in India. This varies according to the season and also according to the price ruling in the market, because the area under cultivation fluctuates to a large extent according to the prices realised by the cultivator. If prices are not good and rice is being sold at a good price, the cultivator will place more land under rice and less under jute, and in the same way when conditions change, he returns to jute. With the rapid growth of the world's trade, the demand for jute is increasing, and even with an extension of cultivation and a favourable season, the total production might be insufficient to meet the demand. Prices would then rise and further extension would go on until the produce exceeds the demand, when prices would fall again and there would be a contraction of cultivation until equilibrium is restored. The trade in raw jute also differs materially from the trade in other Indian staples. It is more speculative and uncertain than any other trade in the country. The crop is grown almost exclusively in a limited part of Bengal, and a good or a bad season there is the most material factor in the trade. With other crops, such as rice, wheat, and oilseeds, the area over which they are cultivated is so extensive that a deficient crop in one place does not affect the total supply, to a material extent, if there has been a fairly good season in other places where the crop is

also cultivated. With jute the case is different, for a good season or a bad season in the limited area means a good, bad or indifferent supply for the whole world, the whole crop being equally affected. The trade consequently presents, from year to year, the most changing appearance. The crop is relatively small and prices run up, or it is relatively large and prices run down, or when the conditions of the trade favour all speculative combination, even an abundant supply may be coincident with high prices. These remarks are borne out by the following statement which shows, year by year, the acreage under cultivation, the total outturn, the exports and the index numbers of the average prices in gold in the important countries of the world during all the years of the period comprised in the enquiry.

Statement showing the acreage under cultivation, the total outturn, the exports and the Index Numbers of the prices in gold in the important countries of the world.

Years.	Acreage under cultivation in thousands of acres.	Production in thousands of maunds.	Export in thousands of maunds.	INDEX NUMBERS OF PRICES.				
				INDIA.	UNITED KINGDOM.	GERMANY.	CANADA.	UNITED STATES.
				Jute.	Jute Native firsts.	Jute Raw.	Jute 1st mark.	Jute Raw M ✡
1890	2,450	32,181	19,671	101	116	..	100	100
1891	1,779	20,321	15,251	104	92	..	92	96
1892	2,203	29,159	18,454	101	92	111	114	123
1893	2,229	24,702	16,329	101	100	95	98	90
1894	2,273	30,040	22,937	93	100	94	96	91
1895	2,248	32,037	22,820	90	87	79	83	72
1896	2,212	27,048	22,241	100	96	87	94	83
1897	2,659	33,471	28,696	89	88	80	85	97
1898	1,691	26,610	21,629	88	84	79	84	86
1899	2,072	27,903	21,432	103	93	89	92	95
1900	2,101	33,446	26,619	117	114	105	107	113
1901	2,282	38,502	31,108	103	86	94	90	104
1902	2,145	32,762	29,403	100	102	87	93	114
1903	2,503	39,712	30,326	113	109	97	102	120
1904	2,943	37,967	29,410	117	102	99	104	115
1905	3,140	43,105	33,220	146	134	132	134	103
1906	3,524	47,352	36,423	186	185	177	178	140
1907	3,942	53,228	36,001	170	160	143	157	127
1908	2,839	32,580	40,903	129	123	111	116	96
1909	2,759	33,698	39,754	120	109	95	101	82
1910	2,833	36,176	37,337	131	111	106	104	89
1911	3,091	42 293	39,200	170	..	155	..	..

Course of prices of Jute.

293. The most noticeable features are as follows :—In 1891, the outturn of the crop was relatively deficient and prices rose. In 1892, the crops were better and prices fell 3 points; they continued at the same level in 1893, although the production was somewhat smaller than in the previous year. In 1894, there was an increase of 2 per cent. in the acreage under cultivation and the crop was exceptionally good. The gold price accordingly fell to an unprecedentedly low level, but as at the same time the gold price of the rupee fell from 14·546*d*. to 13·1*d*. there was a slight increase in the rupee price. This was followed by a gradual contraction in cultivation until it reached its lowest level in 1898. In 1896, the crop suffered from insufficient and unseasonable rain and prices rose, but the level was still lower than that of 1892 and 1893, and the small outturn acted as a deterrent to any extension of cultivation, specially as the price of rice was rising very rapidly owing to the impending famine. The next season was very favourable and the crop harvested exceeded expectations. Prices, therefore, declined heavily and this led to a further contraction of the area under cultivation. In the following year, the season was adverse and the result was a small crop, but as mills had laid by large stocks in the previous year the

demand was slack and there was no improvement in prices. In the two following years (1899 and 1900), there was a steady recovery in prices and the effect of two successive years of deficiency was fully felt in the latter year when prices rose to a level much higher than had ever been reached before. The years 1901 and 1902 were good and the level of prices went down to 103 and 100 respectively. The fall in the price of rice was, however, greater and much more rapid and the prospects of profit from that crop gloomier, and, as a consequence, there was an extension of the cultivation of jute. Since then, for some years, the seasons were good and there was a steady increase in the area under cultivation and in the outturn. Still in each successive year the increased outturn fetched a much higher average price than that of the previous year. The average price ratio for raw jute rose to its highest point (186) in 1906. The rise in the price of jute in 1905 and 1906 was not singular, as during these two years there was a rise in the prices of almost every kind of agricultural product in India, but in 1907 there was a fall in the price of jute although in the price of most other articles there was a rise. The total production of jute in 1907 was the heaviest on record and was followed by a large drop in the price, though in the previous years a steady increase in the outturn had been accompanied by a steady increase in the price. The demand for jute in the world markets was growing steadily, but in the end the growth of production was more rapid than that of the demand and the effects of over-production were evidently perceptible for the first time in 1907 when the price ratio for raw jute receded to 170 from 186 in 1906.

294. The full effect of the over-production was perceived in 1908, when, notwithstanding a serious contraction of the area under cultivation and of the total outturn, there was a heavy decline in the price because of the financial crisis in America and of the accumulation in the markets of the world of considerable stocks from the bumper crops of the previous years, and also because of a restriction of the demand in India as the result of the collapse of her export trade. The contraction in the area under cultivation continued in 1909, but owing to a favourable season the outturn was much higher and prices dropped still lower. In 1910, the season was good and the outturn was higher than in the two preceding years, but in the meantime stocks had gone down and there was consequently a rise of 11 points in the price. In 1911, there was a still further increase in the total outturn but it was still considerably less than the average of the three years, 1905 to 1907, and prices rose to a point slightly higher than the average of the three years mentioned above. There was a still further rise in 1912 and the present level is much higher than that of any previous year. The rise in the price of jute manufactures throughout the period has been considerably smaller than that of raw jute owing to an exceptional activity in the industry, both here and abroad, the number of jute spindles and looms in India having been more than doubled during the last decade.

295. On the whole, the price of jute since 1903 does not seem to have depended so much on supply as on the world's demand for it. This, however, can hardly account for the enormous price which it fetched in 1906, and the same influences which in recent years have raised the general price level of commodities as a whole must have raised the price of jute also.

HIDES AND SKINS.

Prices ruled by foreign markets.

296. The price of hides and skins in India is almost exclusively governed by the prices prevailing in Hamburg, London, New York and other world markets. The growing demand from these markets for Indian hides and skins is shown by the following figures of their total exports from India.

Exports of Hides and Skins from India.

(In thousands of cwts.)

Year.	Hides.	Skins.	Total.	INDEX NUMBERS.	
				Gold price.	Rupee price.
1890-91	561	235	799	112	95
1891-92	588	263	851	103	95
1892-93	568	286	854	93	96
1893-94	550	274	824	99	105
1894-95	636	296	932	93	109
1895-96	745	305	1,050	106	120
1896-97	665	266	931	104	111
1897-98	934	298	1,232	109	109
1898-99	773	297	1,070	117	113
1899-00	1,285	405	1,690	129	124
1900-01	1,495	405	1,900	119	115
1901-02	773	402	1,175	123	118
1902-03	422	391	813	131	126
1903-04	706	428	1,134	142	136
1904-05	756	508	1,264	147	141
1905-06	1,032	678	1,710	154	148
1906-07	1,214	615	1,829	171	164
1907-08	729	463	1,192	168	161
1908-09	865	618	1,483	156	150
1909-10	922	748	1,670	158	152
1910-11	897	695	1,592	171	161
1911-12	997	689	1,686	166	159

Influence of famines on the supply of hides and skins.

297. These figures bear melancholy testimony to the deplorable effects of the famines which are always accompanied by scarcity of fodder and drinking water, when mortality among cattle increases, and people find it extremely difficult to feed and keep their cattle and are compelled to part with them at a nominal price; and they are slaughtered for their hides at any rate, if not for the meat. There is thus an increased supply of hides and skins in years of famine; but in subsequent years, a reaction follows. Owing to the decrease in the number of cattle, there is a decrease in the supply of hides, and it takes some years to replenish the old stock of cattle and for the supply of hides to come up to the old level. The exports of raw skins has gone on increasing owing to a remarkable development of the chrome leather industry in the United States of America.

Course of prices of hides and skins.

298. The exports of hides were slack in 1896 owing to restrictions imposed by the importing countries which dreaded the contagion of plague. In the following year there was a relaxation of the restrictions, and the decline of the previous year was more than made good by the additional supply brought in by famine. Prices fell partly owing to a larger supply and partly owing to inferior quality and diminished consumption in India in consequence of the famine. The exports were highest in 1899 and 1900 when, on the one hand, in consequence of the famine, mortality among cattle increased and supplies were abundant and, on the other, the outbreak of hostilities in South Africa created an unusual demand for the replenishment of all kinds of leather equipments for the army. The decrease in the supplies after the famine and the cessation of the war led to a decrease in the exports until the extraordinary demands of the Russo-Japanese war raised the exports again; and both exports and prices continued to increase until 1907, when the financial crisis in America had a paralysing effect on the trade, and to

add to this, the import into America of hides other than dry arsenic cured, except under a certificate as to disinfection from the American Consul at the place of export, was prohibited, and the cessation of the war caused a slump in German and other markets. The famine of 1908 caused an abundant supply and there was a further fall in prices in spite of large exports. Since then both exports and prices have been increasing again. Another factor contributing to the rise of prices of hides and skins is the higher standard of living throughout India, which must have increased the demand for leather, notwithstanding the fact that the enormous rise in the prices of hides has somewhat restricted the use of leather bags for the purpose of lifting water from wells for irrigation purposes. In years of famine, there is always a serious decline in the purchasing power of the people and a consequent contraction of the consumption in India, and this accounts to some extent for the fall in the price of this class of articles which has invariably accompanied every famine.

GHEE AND MILK.

Prices of Ghee and Milk.

299. The rupee prices of ghee and milk have risen very considerably in the period under enquiry. In the quinquennium 1895-99, they rose as compared with the basic period by 3 per cent., in the quinquennium 1900-04 by 12 per cent., in the quinquennium 1905-09 by 28 per cent., and in the triennium 1910-12 by 46 per cent.

Decrease in the number of milch cattle.

300. Witnesses, whom we examined while on tour, were almost unanimous in saying that the production of milk and its preparations have considerably decreased, owing to a decrease in the number and a deterioration in the breed of milch cattle. The following statement shows the number of milch cattle in each province as compared with the population. Although for reasons explained in Appendix D, absolute reliance cannot be placed on these statistics, yet they show sufficiently that the number of milch cattle in most areas has not increased to any appreciable extent, while in some areas it has decreased. Successive famines have swept away a large number of cattle, and although in subsequent good years there has been a rapid recovery, the ground lost has not been fully regained in some places. That there is some truth in the allegation made by the witnesses cannot, therefore, be altogether denied.

—	NUMBER OF MILCH CATTLE.		POPULATION.		Number of milch cattle per mille of population.
	Number (in thousands).	Percentage of the first year.	Number (in thousands).	Percentage of the first year.	
UNITED PROVINCES OF AGRA AND OUDH.					
1893-94 . . .	9,766	100	47,276	100	206·6
1898-99 . . .	9,497	97	47,638	101	199·4
1903-04 . . .	10,369	106	47,677	101	217·5
1908-09 . . .	9,758	100	47,395	100	205·9
PUNJAB AND NORTH-WEST FRONTIER PROVINCE.					
1893-94 . . .	5,755	100	21,830	100	263·6
1898-99 . . .	5,544	96	22,375	102	247·8
1903-04 . . .	4,232	74	22,429	103	188·7
1908-09 . . .	6,089	106	21,981	101	277·0

—	NUMBER OF MILCH CATTLE.		POPULATION.		Number of milch cattle per mille of population.
	Number (in thousands).	Percentage of the first year.	Number (in thousands).	Percentage of the first year.	
SIND.					
1899-00 . . .	706	100	3,294	100	214·3
1901-02 . . .	717	102	3,362	102	213·3
1905-06 . . .	760	108	3,498	106	217·6
1909-10 . . .	999	142	3,632	110	275·3
BOMBAY PRESIDENCY (EXCLUDING SIND).					
1893-94 . . .	2,911	100	15,609	100	186·5
1897-98 . . .	2,444	84	15,346	98	159·3
1901-02 . . .	1,817	62	15,319	98	118·6
1905-06 . . .	2,147	74	15,526	99	138·3
1909-10 . . .	2,429	83	15 966	102	152·1
BERAR.					
1893-94 . . .	1,065	100	2,805	100	379·7
1896-97 . . .	949	89	2 756	98	344·3
1899-00 . . .	835	78	2,747	98	304·0
1902-03 . . .	583	55	2,781	99	209·6
1905-06 . . .	708	66	2,857	102	247·8
1908-09 . . .	747	70	2,971	106	251·2
CENTRAL PROVINCES.					
1896-97 . . .	2,807	100	9,924	100	282·8
1899-00 . . .	3,036	108	9,849	99	307·2
1902-03 . . .	2,879	103	10,012	101	287·6
1905-06 . . .	3,194	114	10,412	105	306·8
1908-09 . .	3,157	112	11,019	111	285·7
MADRAS PRESIDENCY.					
1890-91 . . .	5,416	100	35,630	100	152·0
1894-95 . . .	5,593	103	36,592	103	152·8
1899-00 . . .	5,441	100	37.917	106	143·5
1901-05 . . .	5,937	110	39,376	111	150·8
1908-09 . . .	7,251	134	40,641	114	178·4

Increased demand for milk and its preparation.

301. Owing to the increase in population and to the general improvement in the standard of living among all classes, the demand for milk and ghee has, on the other hand, considerably increased. Most villagers can now boast of at least one sweet-meat shop if not more, and one has merely to visit one of the village railway stations to be convinced of the increased consumption of ghee and other preparations of milk. Thus there has been a large increase in the demand for and a decrease in the supply of this class of commodities, and it is only natural that prices should rise, as they have done.

CHAPTER X.

A synopsis of the causes of the rise of prices.

Causes of the rise divided into (1) causes peculiar to India and (2) causes that have influenced the price level throughout the world.

302. While it is impossible to lay down with dogmatic confidence the exact importance of each of the causes which have been at work in raising Indian prices in recent years, it is necessary to group them in order of importance notwithstanding the difficulty of disentangling and measuring the effects of each of these causes in raising prices. Prices have risen in almost all the chief countries of the world as well as in India, but the rise in India, in recent years, has been greater than in any other country. The causes of the rise of prices in India may, therefore, be divided into two classes, namely, (1) causes peculiar to India and (2) causes that have influenced the price level throughout the world. It should also be remembered that it is necessary to differentiate between the causes whose duration was more or less temporary and those whose influences extended over the greater part, if not the whole, of the period under investigation.

Causes peculiar to India.

Causes enumerated.

303. Of the causes peculiar to India, the comparative shortage in the production of food stuffs in India proper excluding Burma, the increased demand for India's food products and raw materials both in India itself and in world markets, the increase in communications within India itself and between India and foreign countries, and the decrease in the cost of transport, which have brought India closer to the world markets and the increasing monetary and banking facilities, are perhaps the most important. Of the world factors, the most important are the increased supply of gold, the development of credit, the destructive wars which have taken place, in recent years, one after another in quick succession, and the amounts of labour and capital which are being devoted by the richest countries of the world to increasing their army and navy. There has been a large increase in the price of India's staple commodities owing to an increased demand in world markets, and this improved position of India in international trade has exercised not unnaturally a large influence on the price level. Sir David Barbour in his recent book, 'The Standard of Value,' says: 'During the last fifteen years the relative advantage of India in the International Trade of the world has greatly improved. This improvement has been one of the causes of the rise in the Indian Exchange, and has led to large imports of gold and to the large additions to the rupee currency which the Government of India have had to make. Such an improvement is always attended with a general rise in prices and wages.'

Comparative shortage of production.

304. There has been a large increase in prices due to a shortage of food production in India proper. One must not, however, forget that shortage of supply is often a shortage as compared with a very greatly increased demand. The growing demand for jute, cotton, and other commercial crops in the world markets has stimulated the production of these commodities, and has prejudicially affected the cultivation of food grains. Unseasonable and deficient rainfall, during the period under enquiry, has also contributed, in no small measure, to a shortage of production. This was specially marked in 1891-92, 1896-97, 1899-00 and 1907-08 and, to a lesser extent, over a series of years during the last decade, which were more or less unfavourable. The cumulative effect of such unfavourable years, coming one after another, has often been under-estimated. A detailed examination of the statistics of outturn of food-grains for India excluding Burma, shows that production has not kept pace with population in the way which one would have supposed. This shortage in supply has, however, to some extent, been made good from Burma, where the area under rice cultivation has increased with great rapidity and, with extensive tracts still available for rice cultivation, will in all probability go on increasing. In the famine of 1908, for example, a consider-

able portion of Burma's rice supplies was diverted to Bengal and Madras, instead of being exported to the Far East or to Europe.

Increased demand in India.

305. There has been an extraordinary growth of prosperity among large sections of the people, specially those who are engaged in the cultivation of jute, cotton, oilseeds and wheat. The purchasing power of these classes has greatly increased, and this has stimulated the consumption of all kinds of necessaries. The population of cities and other industrial centres has grown very rapidly, with the development of trade and commerce and of industries on Western lines; this growth has resulted in the transfer of a large part of the population from a lower to a far higher standard of food-consumption. There has been a remarkable change in the style of living of all classes of society, throughout the country, and this has led to an increased demand, not only for luxuries, but also for the finer varieties of food grains at the expense of the cheaper kinds: the consumption of miscellaneous articles of food, *e.g.*, meat, fish, vegetables, ghee and milk, has also increased very largely; in many tracts the ordinary cultivator has now become a fierce competitor with the middle classes for these commodities. There has, thus, been a large increase in the demand for commodities generally, on the part of the consumers resulting in a rise of prices.

Development of communications and lowering of cost of transport.

306. The development of communications and the lowering of the direct and indirect costs of transport, in India itself and between Indian ports and foreign countries, have also contributed, to a large extent, to the advance of prices. The mileage of railways has nearly doubled in the last 23 years, and railway freight has fallen by about 30 per cent. The advent of railways in remote areas has removed the difficulty and, in many cases, the impossibility of transporting their produce profitably to central markets. The growth of the mercantile marine and the extension of cables and telegraphs have, during the last 10 or 15 years, brought India closer into the world's commerce. Prices in Indian ports are now linked on to those of the world markets, and prices in upland districts have similarly been levelled up to those at the ports, in a greater degree than was previously the case. The fall in freights has had, between 1890 and 1910, a great influence in affecting relative prices not only in different parts of India but between the world markets and India itself. The fact that India and the world's markets are mutually sympathetic, to a greater degree than at the commencement of the period of this enquiry, has resulted in factors, outside India, affecting prices here with greater rapidity and to a greater extent than formerly. A shortage in wheat, rice, cotton or oilseeds in European or American markets makes itself felt at once in India, and the prices of the respective commodities not only at the ports, but also in upland districts, tend to conform more closely to those of the world markets than is generally believed. The effect of this increasing sympathy, between Indian and the world's markets, and between different parts of India, is that prices are prevented from falling as low or rising as high, as they would otherwise have done.

Growth of monetary and banking facilities and development of credit in India.

307. The capital and reserves of the Joint-Stock Banks in India including Presidency Banks, have increased in the decade ending 1911 by 56 per cent. Private deposits available for commercial enterprise have increased from an average of twenty-six crores in the five-year 1890-94 to about eighty-five crores in 1911. The amount of cheques cleared in the three Presidency towns has increased from 138 crores in 1890 to 517 crores of rupees in 1912. This remarkable growth of monetary and banking facilities and development of credit have increased the resources of business-men and with it the demand for commodities generally, and prices have risen to an extent greater than what would have been possible had this improvement not been co-existent.

Causes that have influenced the price level throughout the world.

The development of credit throughout the world.

308. The development of credit has not been confined to India, but has been general throughout the world, and this has been the prime factor which has raised the price level in all countries. The gold supply, as already explained, has increased to an extent unparalleled in the history of the yellow metal. It is this increase of gold and a simultaneous increase in credibility, *i.e.*, in securities which Bankers would accept in making advances, that has led to the remarkable development of credit.

Destructive war and increase of armaments.

309. Destructive wars which have taken place in quick succession since 1898 and the increase in armaments in all countries have also affected the price level to a large extent. Capital and labour have been diverted to what may be termed "unproductive" purposes, and there is also an increased demand for many classes of commodities, as a result of the activity on the part of the most prosperous nations of the world in increasing their army and navy.

More important of the causes mentioned.

310. These are believed to be the principal causes of the recent rise in Indian prices. It is clearly impossible to keep each of these apart by itself for, as already pointed out, they are continually acting and reacting on one another. We may, however, emphasise the importance of the increase in communications and the fall in the direct and indirect costs of transport, the increased demand consequent on a general improvement in the standard of living, together with the great development of Banking and credit resulting from an increase in credibility and in the supply of gold consequent on the discovery of the cyanide process and the extension of the Transvaal mining industry. There are other contributory causes, not mentioned above, such as the sinking of large amounts of labour and capital on the development of Railways and the opening out of new tracts in backward countries, the fruitfulness of which will take some time to mature, but which have stimulated consumption and prevented production from overtaking it. These have already been mentioned when analysing the primary causes, but no attempt has, for obvious reasons, been made to assign their relative importance.

CHAPTER XI.

The rise of prices—whether permanent or temporary.

All causes to be considered.

311. In answering the question—whether the rise of prices is a permanent feature or is only temporary—it is necessary to take into account all the factors which have influenced the general price level in India in recent years. Predictions, which are based on one factor only, would be of no value. All the causes of the rise, including both those which are peculiar to India and those which have affected the general price level of the whole world, should be carefully considered. Questions of money and prices are now international in their nature, and no trustworthy forecast can ever be made without taking into account the conditions prevailing in other countries and in the world generally.

General price level and smoothed-averages to be considered.

312. In predicting the future level of prices, we should take into account the general price level, *i.e.*, the level of all prices, whether of food, raw materials, or manufactures, and not the price ratios of individual articles or classes of commodities. It has already been pointed out that the price level in India, Australia and some other countries have been subject to violent fluctuations in particular years in consequence of unfavourable seasons or other special causes. The yearly price level would not, therefore, be a convenient guide, in considering the question of the permanence or otherwise of the rise of prices. It is, accordingly, expedient to deal with smoothed averages and smoothed price curves rather than with yearly figures. It is also certain that the longer the period for which averages are taken, the greater will be the chances of fluctuations, due to temporary causes being eliminated and the averages giving clearer indications of the more lasting tendency on the part of the general price level to rise or fall. The five yearly averages given in another part of the report are not smooth enough, giving, as they do, clear indications of the more violent movements, both up and down, in particular years. It appears to be desirable, therefore, to take the averages of a longer term, but in consideration of the fact that the period under enquiry is limited to 23 years, it is not advisable to take a longer period than nine years. Each succeeding period of nine years taken consists of eight years of the previous period and the year just after its end.

One-yearly smoothed averages.

313. The table on page 131 shows these nine-yearly smoothed averages for India as well as for some of the other important countries of the world, *viz.*, England, Germany, Belgium, Italy, France, United States, Canada, Australia and New Zealand. Chart No. 26 gives graphic representations of these smoothed averages. A tendency to steady rise is clearly observable in the case of all the curves since 1896, and it is clear that the forces at work, whatever they have been, have raised the price level steadily in all the countries. Unless these forces cease to work or there is a change in their relative strength, it is only reasonable to expect that the upward tendency will continue.

Rise due to local causes likely to be maintained.

314. As regards the causes peculiar to India, the most important have been the growth, distribution and changes in the habits of the population, the inadequacy of the production of food supplies in the country to meet the increased demand, a steady increase in credit devices and a growth of transport facilities. In recent years, the population, in spite of the ravages of malaria and plague, has increased, and changes in the distribution have been, and are still taking place, involving changes of occupation, which mean transfer from a lower to a higher standard of food consumption, and in fact, from a lower to a higher standard of living generally. So far as such changes are concerned, their effect on prices is likely to continue. It is true that the insufficiency of the production, during a considerable portion of the period under enquiry, has

been due, more or less, to unfavourable seasons, coming one after another in quick succession, and that their influence on prices, *ceteris paribus*, cannot but be temporary. It is also true that, with the extension of irrigation, production is likely to increase at a more rapid rate in the future. It should be remembered, however, that, with the slow but gradual industrialisation on a scientific basis, which is now proceeding in India, the production of commercial crops will gradually increase, and with the increased numbers of mills working up this raw material into manufactured commodities, India (excluding Burma) will become less and less dependent on the production of food crops as a source of her wealth. Changes have taken place and are still taking place in the methods of business. The spread of education and the continued prosperity of the country are likely to raise the standard of living still higher, and thereby to stimulate consumption. Credit devices, owing to the growth of banking and the increase in credibility, will go on increasing, as they have done in recent years. The velocity of money, including credit, especially in large towns with their ever-growing business, is also on the upward trend. An analysis of the factors, affecting India alone, thus tends to show that most of these will probably continue to exert their influence, for the next generation at least, in the same direction as in the last decade. The general level of prices to-day is not likely to return to the level of the early nineties. It seems also reasonable to expect, but dangerous to prophesy, that although exceptionally good seasons in quick succession, in the immediate future, might temporarily bring down prices to some extent, yet over a series of years, the present level is likely to be more or less maintained, if not raised to a still greater height.

Nine-yearly average Index numbers of Wholesale Prices in Foreign countries and India.

	UNITED KINGDOM.												
	Economist.	Board of Trade.	Sauerbeck.	Average.	Belgium (Waxweiler).	Germany (Schmitz and Hooker).	Italy (Imports and Exports).	France (various).	Canada Department of Labour.	U. S. A. Aldrich Bureau of Labour.	New Zealand (McIlraith).	Australia (Melbourne wholesale prices).	India.
1890-98 . .	96	95	96	96	100	96	96	95	96	94	97	99	102
1891-99 . .	94	94	95	94	100	95	96	94	95	93	96	95	101
1892-00 . .	94	93	96	94	100	95	97	94	95	93	95	95	104
1893-01 . .	94	93	96	94	101	95	97	94	95	93	95	96	106
1894-02 . .	93	92	96	94	103	95	97	94	96	94	95	98	108
1895-03 . .	93	93	97	94	105	97	98	95	98	95	95	102	111
1896-04 . .	94	93	98	95	106	98	99	96	99	97	95	103	113
1897-05 . .	95	94	100	97	108	101	101	98	101	100	95	103	115
1898-06 . .	98	95	103	98	111	104	103	100	104	104	96	103	117
1899-07 . .	101	97	105	101	113	108	105	103	107	107	97	105	120
1900-08 . .	102	98	106	102	116	110	106	104	110	110	97	109	125
1901-09 . .	103	98	106	102	117	111	106	104	111	111	97	110	126
1902-10 . .	104	100	107	103	119	113	107	105	113	114	98	110	128
1903-11 . .	107	101	109	106	121	117	110	108	115	115	99	110	130
1904-12 . .	110	..	111	108	..	..	..	..	117	118	..	111	134

Causes affecting the price level of the world.

315. As regards the causes which have affected the general price level in the whole world, the most important are increased production of gold and an increase in credit and credibility which have added to the facilities for exchange of goods much faster than the requirements of business. The chief factors to be taken into consideration, before predicting the future course of the general price level, are the probable future additions to the gold money of the world and the future growth of deposit banking. The statistical data in regard to both these matters are, however, very meagre. It is difficult, if not impossible, to obtain a reliable estimate of the annual rate of growth of money deposits, the velocity of money and the activity of deposits, all of which exert an important influence on the general price level.

Will the world's gold supply continue to increase.

316. Some gold mining experts, like deLaunay and John Hays Hammond, believe that the world's gold supply will continue to increase for many years to come, especially in view of the decreased cost of production and the possibility of working the cheaper ores, consequent on the invention of the cyanide process. Others like George E. Roberts, Director of the United States Mint, think the chances are that the maximum will be reached in a few years. Director Roberts, who is one of the best informed men in the world on this subject, says in his report for 1911: "It has been a theory of writers on the subject that the rise of commodities and wages would automatically check the production of gold, thus providing its own corrective, but the gold-mining industry furnishes an illustration of how invention, organization, and the use of capital are able to accomplish a reduction in costs when every factor in the calculation shows an advancing tendency. The cost of handling ore and extracting gold in the Transvaal mines per ton of ore treated, has steadily declined and made a new low record in 1910............... While it is not likely that the Rand will show an appreciable decrease for a good many years to come, it is probably not far from the maximum output. There has been no gain in the world's production for some years except that made by the Rand."

317. So far as the production of gold is concerned, it is not, therefore, safe to predict any great increase, although it would be still less safe to predict a decrease. When we consider all the possibilities before us, the chances of new discoveries of gold or of further economies in gold mining and the certainty of a continuance of an enormous annual extraction of ore *actually in sight*, we may feel confident that the annual gold production will not decrease so rapidly or suddenly as not to make a net addition to the world's money and bank reserves.

Addition to gold money and bank reserves.

318. It must be remembered, however, that it is the relative increase of the world's money and bank reserves that is of importance and not merely the annual additions to them. It has already been stated that the total present stock of gold in the world is estimated at £3,033,000,000, of which more than £1,339,000,000 has been obtained during the last two decades, and that of the latter considerably less than half has been added to the gold money and bank reserves of the world. The annual additions in recent years have thus been a large percentage of the total stock of gold currencies existing before. Now that the existing stock has increased so immensely, it is only a very large increase in the future production of gold which could make an equally large proportionate increase to the existing stock. We cannot follow blindly the predictions of those who hold that because the production of gold is not likely to decrease in the immediate future, gold money and bank reserves will continue to increase as fast as in the last decade and that prices will continue to rise at the same rate. The supporters of this theory forget that it is only the proportionate increase in the world's currencies which really affects prices and not the annual addition to the total stock of such currencies. In recent years, an increasing share of the world's output of gold has found lodgment outside of what may be termed the active channels of commerce. Notwithstanding the fact that the production of gold in 1912 amounted to nearly £94,000,000 in value, the stock of gold in the public banks of Europe was increased by only £19,000,000 and in the United States by £16,000,000, while a net sum of only £6,000,000 was imported into Brazil and Argentina. Even assuming that the whole of this went into use as money or into the conversion funds of the two countries, thus giving stability to their paper currencies, and also taking into account the additions to the currencies of other countries, the total additions to the currencies of the world would appear to have been less than half the total production in 1912.

Hoarding of gold.

319. It is thus clear that a very large quantity is being still used in the arts or is being absorbed by India, Egypt and other countries. The

absorption of immense quantities of gold in India during the last 10 or 12 years has already been referred to. In the calendar year 1912, the net import of gold into India appears to have been in the neighbourhood of £29,000,000, of which the greater portion has gone into hoards. There are some who hold that with the development of banking, hoarding is likely to go out of habit in this country. But they ought to be convinced on the foregoing figures that hoarding at the present moment is still on the increase. The habits of the Indians, despite what Western economists might say, have not changed. Their love for jewellery and gold bars is as potent as ever. As in India, so in Egypt, there are no signs of any abatement in the Egyptian's love for gold. The gold which is imported into that country does not enter into bank stocks, but is absorbed by the people. "A little while ago," said Lord Cromer in an address in London, "I heard of an Egyptian gentleman who died leaving a fortune of £80,000, the whole of which was in gold coin in his cellars. Then, again, I heard of a substantial yeoman who bought a property for £25,000. Half an hour after the contract was signed, he appeared with a train of donkeys bearing on their backs the money which had been buried in his garden. I hear that on the occasion of a fire in a provincial town no less than £5,000 was found in earthen pots. I could multiply instances of this sort. There can be no doubt that the practice of hoarding is carried on to an excessive degree." The oriental hoards, therefore, provide a future sink for gold, and a check against the growth of the world's currency and bank reserves. For years to come hoarding in India will continue and, in spite of the arguments of English and American economists, there seems to be little chance in the near future of the tendency to hoard diminishing to any appreciable extent. There is very little strength in the argument that the oriental demand for gold has been, more or less, satisfied already. The point of satiety or saturation seems to be distant yet. It is true that Englishmen formerly used to put a part of their hoards in "plate" which could be reconverted into coin, if emergency required, and that with the advent of bank devices such a custom has long since disappeared. But East is not West and oriental hoards will not pass into monetary use suddenly, as they do not do so, to any large extent, even in times of famine or of special emergency. The statement, therefore, of the Director of the United States Mint must be accepted with reserve when he says: 'There is an undoubted tendency in all countries to use banks more than formerly, and it is probable that the stock of gold in banks has been recruited not only from new production but to some extent from gold heretofore held in private hoards and out of use. In every country the younger generation to whom these hoards descend is likely to put them to some use." There is no justification for holding that a release of oriental hoards will make any additions to the world's production of gold. On the other hand, with the growing prosperity of the orient, the oriental habit of hoarding is likely to claim a larger share of the world's produce in the near future

Future additions to gold currency and bank resesves likely to be proportionately smaller.

320. The table given on page 103, showing the additions to bank and other reserves in gold of some important countries, gives the following results. In the decade ending with 1899, the reserves rose from £296,000,000 to £501,000,000, thus showing an increase of 70 per cent. in the decade or 7 per cent. per annum. In the next eleven years ending with 1910, the reserves rose from £504,000,000 to £867,000,000, the increase being 72 per cent. in the eleven years or 6·5 per cent. per annum. The average annual addition in the first period was £21,000,000 and in the second £33,000,000. Still the percentage of increase in the second period was smaller than in the first. To raise the present stock even at this reduced rate, an annual addition of £56,000,000 to the world's currencies would be required, and this would be possible only if the annual production of gold increases by 60 to 70 per cent. during the next decade. As explained above, under

present conditions there is hardly any justification for expecting such an increase in the gold production of the world. On the whole, it may be reasonably expected that the currencies and bank reserves of the world in gold will continue to increase in the near future, but that the annual additions will not be proportionately as large as in the last decade.

Growth of deposits larger than growth of business. Prices will rise until business overtakes deposits.

321. As regards banking deposits, it has been already shown that the growth has been much larger than that of either money or the volume of trade. The use of cheques in place of money has been increasing with enormous rapidity. All nations—even those which have used cheques for generations—are making a continually larger use of cheques relatively to money. Everywhere the use of banking devices is increasing much more rapidly than the volume of money. Even in England, where cheques have been used for so long a time, the volume of deposits is still increasing. In Canada and Germany it is increasing much faster. In Continental Europe, Japan, India and other backward countries there is vast room for the expansion of deposit banking for many decades to come. On the whole, with the growth of the material prosperity of the world and especially in consideration of the fact that many countries are still far behind the English-speaking races in the use of cheques, it may reasonably be expected that banking deposits of the world, as a whole, will grow at a very rapid rate in the immediate future; though in countries like England, where banking institutions have been in existence for a long time, the rate of further growth might be slow. Even if the rate of growth of the world's metallic currencies becomes comparatively slower in the near future, it does not appear likely that the rate of the growth of banking deposits will diminish to any appreciable extent. The rate of their velocity is also likely to increase. We have corroborative testimony in the statistics of Clearing Houses. The clearings show a more rapid rate of increase than deposits, indicating clearly that the use of cheques is growing faster than the deposits against which they are drawn and that the activity of the deposits is increasing. On the whole, there is no doubt that banking deposits and their activity are likely to grow at a more rapid rate than the volume of business. So long as the rate of growth of business does not overtake that of banking deposits, prices are likely to continue to increase.

Professor Fisher's calculation of the annual rate of growth of money, deposits, etc.

322. Professor Irving Fisher in a paper published in the "American Economical Review," of September 1912, has given details of some elaborate calculations made by him regarding recent percentage rates of the annual growth of money, deposits, velocity of money, activity of deposits and the volume of trade, etc., and has shown that the factors affecting the price level of the world, as a whole, are making for a rise of prices in the future. The following table embodies the result of his calculations :—

Countries.	Money in country.[1]	Bank deposits.[2]	Relative deposits. Col. 3 divided by 2.	RECENT PERCENTAGE RATES OF GROWTH PER ANNUM OF										
				Money.	Deposits.	Velocity of money.	Activity of deposits.	Price level.	Volume of trade.	Money expenditures.	Cheque expenditures.	Total expenditures.	Total values bought.
English-speaking .	4·8	26·0	5·4	3·5	8	½	0	2½	5	4	8	7½	7½
Continental Europe and Japan.	6·2	2·9	5	2	8	0	1	2	6	2	9	4 6	8
Other countries .	1·7	·3	·2	⅓	9½	0	0	2	8	½	9½[3]	1-3	10
All gold standard countries.	14·7	29·2	2·0	2⅓	8	½	0	2	5½	3	8	7	7½

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[1] In billions of dollars.

[2] In billions of dollars; information incomplete.

[3] In the absence of data for clearings, the rate of growth of cheque expenditures is taken as equal to the percentage growth of deposits.

323. Professor Fisher says that the chief discrepancies in the table are doubtless in the figure showing the rate of activity of deposits, but there is no doubt that deposits subject to cheques are increasing with the greatest rapidity in Canada and Germany and least in Great Britain. Notwithstanding the discrepancies in these tables, it is clear (1) that deposits are increasing far more rapidly than money, a fact of great significance in the future movements of prices, and (2) that the volume of trade is increasing in all important countries at a lesser rate than deposits.

Conclusion of Professor Fisher.

324. Professor Irving Fisher, in discussing the future trend of the general price level, concludes: "In view of all the facts, it would not seem strange if the rise in prices should continue in the future for at least a generation. This does not, of course, mean that a rise will occur in every individual year. On the contrary, the upward movement, for reasons given elsewhere, is likely to be interrupted every decade or so by a crisis like that of 1907. A restoration of the steady upward movement in prices is pretty sure to mean a boom, and a boom is the incubation period for a crisis. No upper limit is assigned to the possible rate of rise of prices, for the reason that we can never know when new and rich mines will be discovered or when someone will find a paying method of extracting gold from the Southern clays or even from sea water. We conclude, then, that prices are almost sure to continue to rise in the next decade or two, probably as fast on the average as 2 per cent. per annum."

Sir George Paish on the future level of prices.

325. Sir George Paish, Editor of the "Statist," thinks that there will be no fall in the cost of living for some time to come, and that possibly there may be a further advance. "At the moment," he says, "the consuming power of the world per head of population is greater than it has ever previously been, and as the credit of practically every country is at high-water mark, and the lending countries are willing to find great amounts of capital for the borrowing nations, there is likely to be no diminution in the rate of consumption. Indeed, there may be an endeavour to increase consumption more rapidly than production, and a still higher range of prices may result. Nevertheless, if peace is maintained, lower prices will ultimately result from the influx of capital and labour into the food-producing countries. The mileage of new railways, now under construction in the food-lands, is greater than it has been for many years, and the influx of settlers is on a vast scale. During the preliminary stages of railway construction, the building of farm houses, the laying out of towns, the making of roads, etc., consumption increases more rapidly than production; this is the stage in which we are at present, but at a later stage, when many of the new railways will be finished and a much larger proportion of the labourers will be free to devote their energies to production, the latter will increase more rapidly than consumption. . . . . Still, having regard to the great output of gold, to the distance from the world's markets of the new lands still available for settlement, and to the probable condition of credit, it seems improbable that prices will even then fall to anything like the level they reached in the nineties, when the adverse factors in the situation were so many and so cogent."

Rise of prices likely to be permanent.

326. It is not perhaps easy to accept Professor Fisher's calculation of the probable annual rate of increase in the world's general price level. But so far as India is concerned, it seems to be safe to conclude that the rise of prices is likely to continue for some time to come. At any rate it is hardly likely to fall. An analysis of the factors affecting prices, whether confined to India or pervading the whole world, shows that leaving out of account exceptional movements, both up and down, in exceptional times of famine and commercial crisis, the present general price level will be maintained, if not raised.

CHAPTER XII.

Effects of the Rise of Prices.

Importance of the question.

327. The probable effect of the rise of prices on India, as a whole, and on the different sections of the community consisting of land-owners, cultivators, traders, persons engaged in small industries, wage-earners and professional classes, is a question of great importance, the solution of which is beset with special difficulties.

Effect on debtor and creditor countries.

328. It has often been a matter of grave doubt whether the welfare of a country, as a whole, is furthered by a rapid rise in general prices. The question depends on the general economic condition of the country itself. A debtor country, which has large foreign obligations to meet by the export of a part of its produce, benefits when the price of such produce rises, inasmuch as it is able to discharge its foreign obligations by the export of a smaller proportion of its commodities; while a creditor country, which obtains, in return for its investments in other countries, food-stuffs, raw materials and manufactures from those countries, would lose, if prices rise, inasmuch as it would get in payment of its dues a smaller quantity of such commodities.

Effect on an agricultural country.

329. It is sometimes held that, on the whole, the greater portion of the community is benefited by falling prices. This would, however, apply to a country in the van of industrial progress and not to an agricultural country like India; and even in the case of an industrial country it is doubtful whether too much stress is not laid on the immediate effects of the change without considering the ultimate results. There can hardly be any doubt that in an agricultural country like India, rising prices would be beneficial to the country as a whole. A country, which produces enough food-grains and raw materials to leave a surplus available for other countries, would undoubtedly gain, because it would get from other countries a larger value for the commodities which it exports. The different sections of the community would, however, be affected in different ways. The cultivator who holds his land at a fixed rent would benefit; but the landlord, who is under a prolonged engagement for his revenue with Government or some other land-owner and does not cultivate his lands on his own account and is not able to raise the rents payable by his tenants *pari passu* with the rise in prices, would suffer. Other consumers would also suffer, unless their income increases as fast as their cost of living. It is especially in agricultural countries that the position of the day labourers, who form the majority of wage-earners, is one of recurring jeopardy, and, unless their wages rose as quickly as their cost of living, their sufferings would be enhanced. Living, as they do, near the margin of subsistence, they gain little when the season is favourable, whether they be paid in kind or coin. In bad times, when employment is scarce, their sufferings know no bounds. The only salvation of the labouring classes lies, therefore, in an increase in the demand for labour and an increase in the general level of wages, not only corresponding to the increase in their cost of living, but also large enough to provide for a margin to enable them to tide over special periods of distress when it is difficult for them to find employment. If, however, the total number of the population engaged on agriculture is largely in-

excess of the number of persons with fixed income, and if the wages of labourers rise more rapidly than the cost of living, which has been the case in India, as shown in Chapter XIII, a rise of prices cannot but lead to general prosperity of the country as a whole.

Effect on an industrial country.

330. Rising prices generally promote speculation and extravagance, increase consumption, especially of luxuries, and, therefore, stimulate production. In an industrial country, the employers of labour would, therefore, reap an advantage from prices rising more quickly than the cost of raw material and labour, but wage and salary-earners would suffer, as their wages would not rise with the rise of prices. A rise of prices is thus reasonably certain in such a country to become a period of unrest, discontent, agitation, strikes, riots and rebellions.

Different sections of the community affected in different ways.

331. Thus even in the same country, different sections of the community would be affected in different ways by a rise of prices. Capitalists who have made their investments in securities carrying fixed rates of interest, pensioners, public and private employés on fixed salaries, and the professional classes who depend for their income upon customary fees would be adversely affected in every community by a rise in general prices. Wage-earners would also suffer unless their wages rise as much as their cost of living. Producers, on the other hand, would gain, because the cost of production is not likely to increase as quickly as that of the commodities produced.

Question to be examined from three points of view.

332. In discussing the effects of the rise of prices in India, it is proposed to examine the question from three different points of view :—(1) the effect on India as a whole; (2) the effect on the different sections of the community; and (3) the effect in the different economic tracts or circles into which India has been divided.

EFFECT ON THE COUNTRY AS A WHOLE.

India a debtor country.

333. India is a debtor country with large foreign obligations. She has to make heavy remittances to England every year to meet her liabilities there. These consist of (1) interest on the share of her national debt which has been raised in England and on the large amount which has been borrowed in England for the construction of railways and irrigation works, (2) the cost of stores of various kinds required by the Government of India, (3) the furlough allowances, pensions and gratuities of officers who have served in India, (4) the expenditure incurred by the British Government for enlisting and training troops for service in India, and (5) the charges of the India Office. These constitute the Home charges. Besides these, she is also liable for the interest on the sums invested through private channels in tea and coffee plantations, in jute and other factories and in mining and other enterprises. Remittances have also to be made on account of the savings invested outside India of foreign merchants, bankers, lawyers and Government officers living in India and the foreign steam-ships employed in carrying the great bulk of India's coasting trade. All these obligations are discharged by the export of food-grains and raw materials produced in India. These exports have also to pay for the manufactured and other goods which are imported from other countries into India for consumption, and the freight thereof.

Effect of higher prices on Indian exports and imports.

334. The rise of prices in recent years has enabled India to discharge her foreign liabilities by the export of a proportionately smaller quantity of her produce. The following statement shows the declared values of about 99 per cent. of the total exports from India (excluding Burma), year by year, from 1890-1891 to 1911-12, and their values calculated at the average prices which

prevailed during the basic period, 1890-91 to 1894-95, as well as the difference between these two :—

[In lakhs of Rupees.]

YEAR.	EXPORTS (ABOUT 99% OF TOTAL).			IMPORTS (ABOUT 84% OF TOTAL).		
	VALUE IN EACH YEAR.		Increase + Decrease —	VALUE IN EACH YEAR.		Increase + Decrease —
	As declared.	At average rate of basic period.		As declared.	At average rate of basic period.	
1890-91 . . .	89,42	94,18	—4,76	54,07	53,10	+97
1891-92 . . .	96,99	1,00,91	—3,92	50,71	51,20	—49
1892-93 . . .	96,32	94,31	+2,01	47,32	48,61	—1,29
1893-94 . . .	97,66	93,77	+3,89	59,32	58,30	+1,02
1894-95 . . .	97,03	94,25	+2,78	56,17	56,38	—21
AVERAGE .	**9548·4**	**9548·4**	..	**5351·8**	**5351·8**	..
1895-96 . . .	1,02,65	99,28	+3,37	52,40	52,72	—32
1896-97 . . .	93,98	90,04	+3,94	57,51	57,64	—13
1897-98 . . .	88,74	92,62	—3,88	57,07	59,38	—2,31
1898-99 . . .	1,01,57	1,09,23	—7,66	53,07	58,65	—5,58
1899-00 . . .	99,20	1,04,03	—4,83	58,45	62,23	—3,78
AVERAGE .	**97,23**	**99,04**	**- 1,81**	**55,70**	**58,12**	**- 2,42**
1900-01 . . .	98,16	94,24	+3,92	66,21	65,59	+62
1901-02 . . .	1,14,61	1,13,63	+98	67,17	68,45	—1,28
1902-03 . . .	1,14,51	1,14,66	—15	62,26	64 46	—2,20
1903-04 . . .	1,38,46	1,35,13	+3,33	63,93	64,88	—95
1904-05 . . .	1,42,89	1,39,09	+3,80	75,67	74,66	+1,01
AVERAGE .	**1,21,73**	**1,19,35**	**+2,38**	**67,05**	**67,61**	**—56**
1905-06 . . .	1,47,74	1,32,56	+15,18	81,99	79,24	+2,75
1906-07 . . .	1,63,49	1,32,77	+30,72	86,76	81,53	+5,23
1907-08 . . .	1,61,50	1,34,60	+26,90	1,03,11	90,82	+12,29
1908-09 . . .	1,41,97	1,23,01	+18,96	97,12	87,50	+9,62
1909-10 . . .	1,73,35	1,48,51	+24,84	96,50	90,27	+6,23
AVERAGE .	**1,57,61**	**1,34,29**	**+23,32**	**93,10**	**85,87**	**+7,23**
1910-11 . . .	1,90,25	1,48,13	+42,12	1,02,93	95,07	+7,86
1911-12 . . .	2,01,91	1,53,33	+48,58	1,04,54	93,22	+11,32

335. Had the price level remained the same as at the standard period, India would have got for her exports only the amounts shown in the above table as the " value at average rates of the basic period," otherwise called " calculated values." Owing to the rise of prices she has gained on 99 per cent. of her exports, the amounts shown in the table as the differences between these calculated values and those declared in the bills of entry. On the other hand, India has also to pay more for her imports in consequence of the rise of prices. The statement given above also shows the declared and calculated values of about 84 per cent. of the imports into India as well as the

differences between the two, which represent the increased payments which India has to make on account of her imports in consequence of the rise in prices. The values of only 99 and 84 per cent. of the total exports and imports, respectively, have been calculated at the average prices of the basic period, because it was possible to ascertain the *quantities* of exports and imports in the case of only those percentages of the goods and not of all classes of goods exported and imported. Assuming, however, that prices of the remaining 1 and 16 per cent. of the exports and imports, respectively, have risen at the same rate as the great bulk of the exports and imports for which it is possible to ascertain the quantities and to calculate values at the prices of the basic period, the gain and loss on the total exports and imports would amount to the figures shown in the table given below. The difference between the total gain on the exports and the total loss on the imports is the net gain to India as a whole in consequence of the rise of prices.

[In lakhs of Rupees.]

	AVERAGE ANNUAL DECLARED VALUES		AVERAGE ANNUAL CALCULATED VALUES		GAIN + LOSS —	
	Of commodities of which quantities are recorded.	For whole of exports and imports.	Of commodities of which quantities are recorded.	For whole of exports and imports.	Difference between columns 3 and 5.	Average annual net gain.
1	2	3	4	5	6	7
1895-96 to 1899-00—						
TOTAL EXPORTS .	97,23	98,70	99,04	1,00,54	—1,84	..
TOTAL IMPORTS .	55,70	66,62	58,12	69,52	+2,90	1,06
1900-01 to 1904-05—						
TOTAL EXPORTS .	1,21,73	1,23,55	1,19,35	1,21,14	+2,41	..
TOTAL IMPORTS .	67,05	80,24	67,61	80,92	+68	3,09
1905-06 to 1909-10—						
TOTAL EXPORTS .	1,57,61	1,59,97	1,34,29	1,36,30	+23,67	..
TOTAL IMPORTS .	93,10	1,15,48	85,87	1,06,48	—9,00	14,67
1910-11 and 1911-12—						
TOTAL EXPORTS .	1,96,08	1,99,07	1,50,73	1,53,02	+46,05	..
TOTAL IMPORTS .	1,03,73	1,28,14	94,14	1,16,28	—11,86	34,19

Net gain on exports and imports.

336. India as a whole has thus gained, by the rise in the prices of her net exports, annually Rs. 1,06,00,000 during 1895-96 to 1899-1900, Rs. 3,09,00,000 during 1900-01 to 1904-05, Rs. 14,67,00,000 during 1905-06 to 1909-10 and Rs. 34,19,00,000 during 1910-11 and 1911-12.

Popular opinion of effect of rise of prices on India fallacious.

337. The popular belief in India is that the rise of prices is detrimental to the interests of the country as a whole. This is because those who form public opinion in India are the educated classes who are either landlords or persons depending for their income on securities, shares, etc., or are members of the learned professions dependent for their income upon customary fees,

or are employés on fixed salaries in Government or private service. If incomes and prices vary irregularly, as they do in actual practice, the man whose income does not rise as fast as the prices of goods will find himself worse off than before, while the man whose income being derived from the sale of commodities rises with every rise in the price of his commodities, will find his material position changed for the better. In framing an estimate of the comparative effects of a rise of prices on the general welfare, one must, therefore, take into account the numerical strength of the classes whose receipts and expenditure being variable adjust themselves, more or less, rapidly to the altered value of money, and of the classes whose incomes being fixed are adjusted only after considerable friction and delay. In India, the number of persons dependent on the land for their income form 60·0 per cent. of the total population; agricultural labourers, 13·3 per cent.; industrial and commercial classes, 18·1 per cent.; general labourers (not agricultural), 2·3 per cent.; professional classes, 1·6 per cent.; public servants, 1·2 per cent.; domestic servants, 1·5 per cent.; and other occupations, 2·0 per cent. The prosperity of India depends, therefore, largely on the prosperity of those who are dependent on agriculture for their subsistence, and not so much on that of the professional classes and public and private servants who form only a microscopic minority of the population. Those who hold that rising prices have been detrimental to the interests of India as a whole, generally urge that rising prices have increased the indebtedness of the agriculturists and that there has been no increase in the savings of the population, whose material position cannot, therefore, be said to have improved. It will be shown later on that agricultural indebtedness has not, as a matter of fact, increased. In any case, the rise of prices cannot be said to have contributed to the increase, if there has been any. Rather, it has acted as a check against increasing indebtedness. There is also little evidence to justify the conclusion that there has been no increase in the savings of the people. On the other hand, an enormous increase in the absorption of gold and silver in India during the last 10 or 15 years bears *eloquent* testimony to the growth of prosperity of India. Again, the material welfare of a country does not depend so much on the quantity of the precious metals which it accumulates as on the comforts which it is able to enjoy and on an equitable distribution of the means of such enjoyment.

Absorption of gold and silver in India.

338. As mentioned above, a noticeable sign of an improvement in the material position of India is the astounding increase in her power of absorbing the precious metals, whether in the shape of jewellery or plates or in hoards. The following table shows the net absorption of gold and silver in India during the period under enquiry, *i.e.*, the net imports of gold and silver in India, the amount of gold held in the currency and other reserves and the amounts of silver which have gone to increase the volume of rupee circulation. The net absorption of gold has been taken at the net imports *plus* the total production of gold in India, *less* the amounts held in the Currency and other reserves. No deduction has been made on account of sovereigns which have gone into circulation in the country. It has not been possible to ascertain the total amount of these, and as it cannot be large, the omission does not affect the question under consideration to any appreciable extent. The net absorption of silver has been taken at the net imports *less* the amounts which have gone to swell the volume of the rupee circulation. The total amount of gold and silver absorbed in the country during the twelve years 1900 to 1911 amounted to £116,000,000 of gold and 1,600,000,000 tolas of silver against £27,000,000 and 1,150,000,000 tolas, respectively, in the twelve years prior to 1900.

Absorption of Gold in India.

[In millions of pounds sterling.

YEAR.	Net annual addition to the stock of the country.	Progressive total of additions to the stock.	Held in mints and Government treasuries and Currency and Gold Standard Reserves.	NET PROGRESSIVE ABSORPTION.			Absorption of the year.
				Sovereigns.	Other coins and bullion.	Total.	
1873-74 . .	1	1	..	..	..	1	1
1874-75 . .	2	3	..	..	..	3	2
1875-76 . .	1	4	..	..	..	4	1
1876-77 . .	..	4	..	..	..	4	..
1877-78 . .	1	5	..	..	..	5	1
1878-79 . .	−1	4	..	..	..	4	−1
1879-80 . .	1	5	..	..	..	5	1
1880-81 . .	3	8	..	..	..	8	3
1881-82 . .	4	12	..	..	..	12	4
1882-83 . .	4	16	..	Details not available.		16	4
1883-84 . .	4	20	..	..	..	20	4
1884-85 . .	4	24	..	Details not available.		24	4
1885-86 . .	2	26	..	..	..	26	2
1886-87 . .	2	28	..	..	..	28	2
1887-88 . .	2	30	..	..	..	30	2
1888-89 . .	2	32	..	..	..	32	2
1889-90 . .	3	35	..	..	..	35	3
1890-91 . .	5	40	..	..	..	40	5
1891-92 . .	2	42	..	..	..	42	2
1892-93 . .	—1	41	..	..	..	41	−1
1893-94 . .	1	42	..	..	..	42	1
1894-95 . .	—2	40	..	..	..	40	−2
1895-96 . .	2	42	..	..	..	42	2
1896-97 . .	3	45	..	..	..	45	3
1897-98 . .	5	50	..	..	..	50	5
1898-99 . .	6	56	2	..	..	54	4
1899-00 .	8	61	7	..	..	57	3
1900-01 . .	2	66	7	1	58	59	2
1901-02 . .	3	69	7	2	60	62	3
1902-03 . .	8	77	10	4	63	67	5
1903-04 . .	9	86	11	7	68	75	8
1904-05 . .	9	95	11	10	74	84	9
1905-06 . .	3	98	4	14	80	94	10
1906-07 . .	12	110	4	19	87	106	12
1907-08 . .	13	123	3	26	94	120	14
1908-09 . .	5	128	..	30	98	128	8
1909-10 . .	16	144	6	33	105	138	10
1910-11 . .	18	162	6	41	115	156	18
1911-12 . .	27	189	16	49	124	173	17

Statement showing the absorption of Silver—Rupees and Bullion.

[Omitting 00,00,000]

	Stock of rupees at the commencement of the year (rupees or tolas).	Net coinage of rupees during the year (rupees or tolas).	Deduct Net exports of rupees during the year (rupees or tolas).	Total (col. 2 & col. 3 —col. 4) (rupees or tolas).	Stock of rupees at the end of the year (rupees or) tolas).	Absorption of rupees during the year (rupees or tolas).	Absorption of silver bullion during the year (tolas) (as in the statement below).	Total absorption of silver during the year (tolas).
1	2	3	4	5	6	7	8	9
1885-86 .	1,09	9	..	1,18	1,13	5	2	7
1886-87 .	1,13	5	..	1,18	1,11	7	3	10
1887-88 .	1,11	8	..	1,19	1,11	8	—1	7
1888-89 .	1,11	7	..	1,18	1,12	6	3	9
1889-90 .	1,12	7	..	1,19	1,17	2	3	5
1890-91 .	1,17	12	..	1,29	1,20	9	2	11
1891-92 .	1,20	6	..	1,26	1,26	..	4	4
1892-93 .	1,26	10	..	1,36	1,38	—2	1	—1
1893-94 .	1,38	8	..	1,46	1,36	10	11	21
1894-95 .	1,36	..	1	1,35	1,30	5	8	13
1895-96 .	1,30	..	..	1,30	1,28	2	8	10
1896-97 .	1,28	—1	1	1,26	1,20	6	8	14
1897-98 .	1,20	—1	..	1,19	1,20	—1	13	12
1898-99 .	1,20	..	2	1,18	1,15	3	8	11
1899-00 .	1,15	—1	1	1,13	1,12	1	5	6
1900-01 .	1,12	9	1	1,20	1,20	..	—1	—1
1901-02 .	1,20	8	..	1,28	1,37	—9	8	—1
1902-03 .	1,37	—2	1	1,34	1,27	7	10	17
1903-04 .	1,27	5	1	1,31	1,29	2	13	15
1904-05 .	1,29	12	1	1,40	1,32	8	14	22
1905-06 .	1,32	10	1	1,41	1,42	—1	8	7
1906-07 .	1,42	24	1	1,65	1,60	5	16	21
1907-08 .	1,60	23	..	1,83	1,86	—3	13	10
1908-09 .	1,86	..	..	1,86	1,92	—6	22	16
1909-10 .	1,92	..	1	1,91	1,90	1	19	20
1910-11 .	1,90	..	2	1,88	1,86	2	18	20
1911-12 .	1,86	—1	1	1,84	1,80	4	10	14

Statement showing the absorption of Silver—Bullion.

[Omitting 00,000]

	Imports of silver.	Exports of silver.	Net imports of silver.	Net imports converted into rupee fineness.	Net coinage of rupee and small silver.	Absorption of silver bullion.
	Ozs.	Ozs.	Ozs.	Tolas.	Tolas.	Tolas.
1885-86 . . .	..	..	4,07	11,84	9,83	2,01
1886-87 . . .	..	..	2,51	7,30	4,56	2,74
1887-88 . . .	3,79	51	3,28	9,54	10,32	—78
1888-89 . . .	3,78	54	3,24	9,43	6,80	2,63
1889-90 . . .	4,39	53	3,86	11,23	8,24	2,99
1890-91 . . .	5,62	47	5,15	14,98	13,07	1,91
1891-92 . . .	3,81	58	3,23	9,40	5,36	4,04
1892-93 . . .	5,42	87	4,55	13,24	12,51	73
1893-94 . . .	6,03	60	5,43	15,80	4,61	11,19
1894-95 . . .	2,95	5	2,90	8,44	3	8,41
1895-96 . . .	3,13	30	2,83	8,09	..	8,09
1896-97 . . .	3,37	55	2,82	8,06	—7	8,13
1897-98 . . .	6,44	1,84	4,60	13,38	38	13,00
1898-99 . . .	4,74	1,84	2,90	8,44	37	8,07
1899-00 . . .	4,90	2,66	2,24	6,52	1,32	5,20
1900-01 . . .	6,27	1,00	5,27	15,33	16,93	—60
1901-02 . . .	6,34	2,31	4,03	11,73	3,82	7,91
1902-03 . . .	7,37	2,80	4,57	13,30	3,25	10,05
1903-04 . . .	10,12	1,98	8,14	23,68	11,15	12,53
1904-05 . . .	9,58	1,92	7,66	22,29	7,81	14,48
1905-06 . . .	8,76	4	8,72	25,37	16,88	8,49
1906-07 . . .	12,32	2	12,30	39,12	23,38	15,74
1907-08 . . .	10,18	25	9,93	28,89	15,70	13,19
908-09 . . .	8,17	69	7,48	21,76	24	21,52
909-10 . . .	7,38	76	6,62	19,26	11	19,15
1910-11 . . .	6,77	63	6,14	17,86	20	17,66
1911-12 . .	6,94	3,23	3,71	10,79	30	10,49

Growth of India's export and import trade.

339. The progress and prosperity of India as a whole is also apparent from an examination of the declared values of the trade between 1890-91 and 1911-12, as shown in the statement below.

Statement showing the growth of Exports from and Imports into India excluding Burma.

[**In lakhs of Rupees.**]

YEARS.	DECLARED VALUES.			INDEX NUMBERS.			INCREASE DUE TO RISE IN PRICES.		
	Exports.	Imports.	TOTAL.	Exports.	Imports.	TOTAL.	Exports.	Imports.	TOTAL.
1890-91	90,63	62,16	1,52,79	93	100	96	— 5·1	+ 1·9	— 2·6
1891-92	98,19	59,26	1,57,45	102	95	99	— 3·9	— ·9	— 2·9
1892-93	97,72	55,80	1,53,52	101	90	97	+ 2·0	— 2·6	+ ·6
1893-94	99,09	68,55	1,67,64	102	110	105	+ 4·1	+ 1·9	+ 3·2
1894-95	98,44	65,67	1,64,11	102	105	103	+ 2·9	— ·3	+ 1·7
AVERAGE .	**96,81**	**62,29**	**1,59,10**	**100**	**100**	**100**	..	..	..
1895-96	1,04,14	63,56	1,67,70	107	102	105	+ 3·3	— ·2	+ 2·0
1896-97	95,36	68,41	1,63,77	98	110	103	+ 4·3	— ·3	+ 2·5
1897-98	90,10	67,06	1,57,16	93	108	99	— 4·2	— 3·4	— 4·1
1898-99	1,03,09	63,92	1,67.01	107	103	105	— 7·0	— 9·2	— 7·9
1899-00	1,00,80	70,16	1,70,96	104	113	107	— 4·7	— 6·1	— 5·2
AVERAGE .	**98,70**	**66,62**	**1,65,32**	**102**	**107**	**104**	**— 1·9**	**— 4·3**	**— 2·7**
1900-01	99,91	76,56	1,76,47	103	123	111	+ 4·1	+ 1·4	+ 2·9
1901-02	1,16,38	79,52	1,95,90	121	128	123	+ 0·8	— 1·4	— ·2
1902-03	1,16,53	75,68	1,92,21	121	121	121	— 0·1	— 3·5	— 1·4
1903-04	1,40,14	78,41	2,18,55	145	126	137	+ 2·4	— 1·5	+ 1·1
1904-05	1,44,81	91,02	2,35,83	149	146	148	+ 2·6	+ 1·3	+ 2·2
AVERAGE .	**1,23,55**	**80,24**	**2,03,79**	**128**	**129**	**128**	**+ 1·9**	**— ·8**	**+ ·9**
1905-06	1,49,84	99.82	2,49,68	155	160	157	+11·4	+ 3·4	+ 8·4
1906-07	1,65,71	1,07,61	2.73,32	171	173	172	+23·0	+ 6·3	+16·7
1907-08	1,64,00	1,29.34	2,93,34	170	208	184	+19·9	+13·5	+17·3
1908-09 . . .	1,44,55	1,21,94	2,66,49	149	196	168	+15·3	+10·9	+13·5
1909-10	1,75.76	1,18,68	2,94,44	181	190	185	+16·5	+ 6·9	+13·0
AVERAGE .	**1,59,97**	**1,15,48**	**2,75,45**	**165**	**185**	**173**	**+17·3**	**+ 8·4**	**+13·8**
1910-11 . . .	1,93,24	1,26,52	3,19,76	200	203	201	+28·3	+ 8·7	+20·5
1911-12 .	2,04,90	1,29,76	3,34,66	212	208	210	+31·7	+12·6	+23·5
AVERAGE .	**1,99,07**	**1,28,14**	**3,27,21**	**206**	**206**	**206**	**+30·0**	**+10·7**	**+22·0**

340. Compared with the average of the quinquennium, 1890-91 to 1894-95, the growth of both exports and imports in the quinquennium, 1895-96 to 1899-1900, was not very large. The widespread famine of 1897-98 caused a heavy decline in the exports in 1896-97 and 1897-98. As a result of the impoverished condition of the people and a consequent decrease in their purchasing power, there was a decline in the imports also in 1898-99. On the whole, the value of the total trade in the quinquennium exceeded that of the previous quinquennium by 4 per cent., the increase in the exports being 2 per cent. and in the imports 7 per cent. The increase in the value of both exports and imports was more than accounted for by an increase in the volume of the trade. As regards the effect of variations in prices, there was an actual decrease in the declared values of 1·9 per cent. in the exports and of 4·3 per cent. in the imports, due to a fall in prices. In 1900-01, the export trade was dull, as a consequence of the famine which prevailed in that year in a considerable part of India, but the import trade developed substantially. It was in 1901-02 that both the import and export trade began to

develop remarkably, though in the next year there was a decline of 5·5 per cent. in the import trade. Since that year, neglecting temporary fluctuations in the import trade and a serious decline in the export trade in 1908-09, when it declined 12 per cent., compared with the preceding year, as the result of the famine of that year, there was a steady increase in both imports and exports until 1911-12, when the total declared values of exports and imports exceeded those of 1901-02 by 75 per cent. and 63 per cent., respectively, the increase in the total trade being 71 per cent. The rise has been greatest during the last seven years, during which it has amounted to 42 per cent. in the case of exports, imports and the total trade. In the quinquennium ending with 1904-05, the corresponding increases were only 25 per cent., 21 per cent. and 23 per cent., respectively, as compared with the previous quinquennium. Apart from an increase in value due to the rise in prices, the volume of both export and import trade has grown immensely, and this cannot but be taken as a sign of great progress.

341. The general conclusion, which may be formed from this statement, showing the declared and calculated values of imports and exports, is that the total volume of the sea-borne trade of India has increased to a very great extent during the last decade, and that this increase in trade and prosperity is due, in a large measure, to a rise in the price of the commodities which are of importance in Indian commerce.

Growth of consumption of articles of luxury imported from foreign countries.

342. A more striking evidence of the material prosperity of India is afforded by its growing consumption of imported articles, most of which were probably considered as luxuries before, but have gradually come to be recognised as necessities. The following statement shows the growth of the imports of 12 such articles. As before, 1890-94 has been taken as the base and the imports in every year are represented as percentages of the average imports of that period :—

Statement showing the value of the imports of certain articles of Luxury and Convenience In India, excluding Burma.

[**In lakhs of Rupees.**]

Year.	Sugar and molasses.	Kerosene oil.	Cotton piece goods.	Silk goods.	Woollen piece goods.	Apparel.	Boots and shoes.	Copper and yellow metal.	Matches.	Soaps.	Betelnuts.	Galvanized iron-sheets.	Total.	Index Numbers.
1890-91 .	3,03	2,15	23,61	72	1,34	96	13	1,13	22	8	36	47	34,20	101
1891-92 .	2,25	2,07	21,71	1,03	1,23	1,01	12	1,26	27	10	35	37	31,77	94
1892-93 .	2,14	2.36	19,79	1,15	1,12	98	11	84	28	10	28	58	29,73	87
1893-94 .	2,39	2,98	25,83	1,12	1,48	1,15	12	1,48	28	11	41	47	37,82	111
1894-9. .	2,52	1,85	26,35	88	1,29	1,09	12	90	30	9	47	53	36,39	107
1895-96 .	2,80	2,67	19,50	1,01	1,10	1,16	13	1,16	29	12	35	72	31,01	91
1896-97 .	2,81	2,69	23,52	92	1,28	1,09	11	70	21	11	38	81	34,63	102
1897-98 .	4.45	3,38	19,95	71	68	81	10	87	33	11	47	57	32,43	95
1898-99 .	3,61	3,01	21,78	79	95	94	12	66	30	12	58	49	33,35	98
1899-00 .	3,03	3,10	23,88	68	1,28	1,02	16	29	26	14	60	54	34,98	103
1900-01 .	5,16	3,36	23,60	83	1,50	98	15	58	32	15	59	87	38,09	112
1901-02 .	5,47	4,10	26,74	89	1,48	1,15	15	69	35	15	56	67	42,40	125
1902-03 .	4,55	3,92	25,03	96	1,02	1,24	18	1,30	36	20	55	94	40,25	118
1903-04 .	5,46	4,64	25,20	95	1,49	1,30	20	1,36	38	22	50	91	42,70	126
1904-05 .	6,33	5,03	30,72	1,20	2,15	1,51	26	1,39	39	23	67	1,37	51,25	151
1905-06 .	7,05	4,25	33,96	1,07	1,69	1,54	25	85	47	26	72	1,05	53,16	156
1906-07 .	8,09	4,48	32,33	1,03	1,23	1,43	21	85	50	26	1,10	1,72	53,23	157
1907-08 .	8,54	4,55	38,55	1,32	1,80	1,74	28	1,20	60	33	1,01	1,79	61,71	182
1908-09 .	10,17	5,36	28,73	1,25	1,88	1,58	26	1,67	62	31	77	1,73	54,33	160
1909-10 .	10,63	5,23	30,86	1,33	1,43	1,66	29	1,67	66	35	84	2,13	57,08	168
1910-11 .	12,21	5,77	35,26	1,82	2,23	2,18	34	2,20	69	41	1,02	2,20	66,33	195
1911-12 .	9,52	6,34	38,43	1,60	2,50	2,46	42	1,63	73	49	1,00	2,72	67,84	200

343. The consumption of most of the articles included in the statement is not confined to the well-to-do classes, but is also quite common now among the masses. The increase in the consumption of these articles is

characteristic and interesting, and illustrates the remarkable increase in the purchasing power of the people, as a whole. No more conclusive evidence of a higher standard of living among the masses can be obtained than that afforded by the growth of the imports of sugar, kerosene oil, apparel, boots and shoes, galvanised iron sheets, copper and yellow metal, matches, soaps, and betelnuts.

344. A measure of the progress of India can also be obtained from the growth of its revenue under some of the most important heads, namely, Land Revenue, Salt, Stamps, Excise, Customs, Assessed Taxes and Registration. The following statement shows the revenue collected under these heads yearly from 1890-91 to 1911-12 :— **Growth of Indian Revenue.**

Statement showing the growth of the Revenue of the Government of India (excluding Burma) under certain important heads.

[In lakhs of rupees.]

—	Land Revenue.	Salt.	Stamps.	Excise.	Customs.	Assessed Taxes.	Registration.
1890-91 .	21,80	8,36	3,91	4.53	1,00	1,55	36
1891-92 .	21.70	8.48	4.13	4,69	1,01	1,58	40
1892-93 .	22,51	8.19	4.29	4,77	1,02	1,61	42
1893-94 .	23.18	8,06	4.35	4,99	1,16	1,66	41
1894 95 .	22,73	8,55	4.16	5.15	3,06	1,72	41
1895-96 .	23.43	8,71	4,56	5,34	4,09	1,75	42
1896-97 .	21,32	8,28	4.61	5,19	3,72	1.79	45
1897-98 .	22.78	8.44	4,67	5.07	3,87	1,79	48
1898 99 .	24,41	8,94	4,62	5,28	3,80	1,82	43
1899-00 .	22,57	8,62	4,70	5,30	3.84	1,84	42
1900-01 .	22.77	8,82	4,81	5,37	4,14	1,87	46
1901-02 .	23,81	8,76	4,94	5,57	4.77	1,93	46
1902-03 .	24,00	9,09	4,95	6,06	4,67	1,98	46
1903-04 .	25,03	7.72	5.08	6,72	4,63	1,69	47
1904-05 .	24,43	7,87	5.28	7,30	5,08	1,76	49
1905-06 .	24,14	6,39	5.52	7.70	5,23	1,83	52
1906 07 .	25,83	6,37	5,65	8,08	5,29	1,98	55
1907-08 .	24,20	4.82	5.99	8,54	6,15	2,08	60
1908-09 .	25,51	4,73	6,14	8,81	6,01	2,15	63
1909 10 .	27,80	4,77	6.46	9,01	6,10	2,15	63
1910-11 .	27,27	4,55	6,83	9,83	8,27	2,20	62
1911-12 .	26,97	4,87	6,86	10,68	8,01	2,29	65

345. The average annual Land Revenue collections in the last five years show an increase of Rs. 3,98,00.000 or 18 per cent. over the standard period. This increase in Land Revenue has been due partly to the increase in prices and partly to an increase in the area under cultivation. It will be shown in dealing with the question of the division of the profits of cultivation between the landlord and the cultivator that the share of the increased profits taken by Government as the supreme landlord, as shown in the foregoing table, is a comparatively small part of the total increase which has accrued from the rise of prices. In the greater part of Bengal and in portions of Madras, Assam and the United Provinces, Land Revenue is fixed in perpetuity. In other parts, the assessments are periodical. In Madras, Bombay and the United Provinces, the ordinary term of settlements is thirty years, and in the Punjab and the Central Provinces, twenty years. During the term of settlement, the whole of the benefit accruing from a rise of prices goes to the people. If, then, the Government share of the profits of cultivation has, as indicated by the growth of their Land Revenue collections, increased by Rs. 3,98,00,000, by how much more has the share of the people increased? **Growth of Land Revenue.**

Growth of consumption of Salt.

346. Salt Revenue was Rs. 8,36,00,000 in 1890-91, but fell to Rs. 4,87,00,000 in 1911-12, owing to successive reductions in the rate of duty made in 1903, 1905 and 1907, the details of which have been already given on page 37. The total quantity of salt consumed per head of the population in every succeeding quinquennium, as shown in the statement given below, is, therefore, a better index of the material condition of the people than the amount of the duty realised. These figures show that, compared with the standard period, the consumption per head of population increased by 5 per cent. in the quinquennium ending with 1904, by 20 per cent. in that ending with 1909, and that the present level is 26 per cent. higher.

Statement showing the Annual Consumption of Salt per head in British India (excluding Burma) during the years 1890—1911.

Year.	Quantity. (In decimals of a maund.)	Year.	Quantity. (In decimals of a maund.)
1890	·1499	1900	·1587
1891	·1557	1901	·1560
1892	·1576	1902	·1588
1893	·1510	1903	·1638
1894	·1556	1904	·1687
AVERAGE .	**·1540**	AVERAGE .	**·1612**
1895	·1551	1905	·1744
1896	·1521	1906	·1820
1897	·1536	1907	·1885
1898	·1557	1908	·1906
1899	·1553	1909	·1887
		AVERAGE .	**·1848**
		1910	·1881
		1911	·1983
AVERAGE .	**·1554**	AVERAGE .	**·1932**

NOTE.—The total quantity of salt sold in a year and which paid full duty, as shown in the "Statistics of British India," Part IV (*b*), has been taken to be the total quantity consumed in the year, and from the census figures of 1891, 1901 and 1911, the population figures for the other years have been arrived at by interpolation.

Growth of Stamp Revenue.

347. Stamp Revenue has increased from Rs. 3,94,00,000 in 1890-91 to Rs. 6,86,00,000 in 1911-12. The largest share of the revenue under this head is contributed by judicial stamps, which may be regarded as a payment for services rendered by costly judicial establishments maintained by Government, rather than as a tax in the proper sense of the word. Still it is a sign of prosperity of the people who indulge in the luxury of litigation. The revenue from non-judicial stamps has also been increasing, which is a fair indication of the growth of business in the country. It may be noted that in years of famine the revenue from court-fee stamps tends to fall because of the necessary self-denial in the pursuit of the luxury of litigation, while the revenue from non-judicial stamps increases owing to an increase of the necessity of borrowing to tide over the period of distress.

Growth of Excise Revenue.

348. Excise Revenue has increased from Rs. 4,53,00,000 in 1900-01 to Rs. 10,68,00,000 in 1911-12. The revenue is derived from intoxicating liquors and drugs and is levied in the form of duty on manufacture and of fees from licenses. It should, however, be noted that the growth of Excise Revenue is not so much due to an increase in the habit of drinking or in the use of intoxicating drugs, as to heavier taxation, the suppression of illicit traffic and the growth of population. The Government of India have

repeatedly pointed out that the available information tends strongly to negative the presumption in some quarters that the growth of Excise Revenue is an indication of a development of the drinking habit. The policy consistently pursued has been unmistakably that "the growth of Excise Revenue is to be regarded as satisfactory only when it results from the substitution of licit for illicit manufacture and sale and not from a general increase of consumption." There has been no increase in the use of intoxicating liquors and drugs, but still there has been an increase in the revenue. Government restricting as far as possible the drinking habit by increase of taxation and other preventive measures. The conclusion that can be safely drawn from the growth of Excise Revenue is that there has been an increase in the purchasing power of the classes that consume intoxicating liquors and drugs, especially during the last decade.

Growth of Customs Revenue.

349. Customs Revenue should, it is obvious, rise with the growing trade of the country and fluctuate according to the trade conditions of the year. In 1890-91, the total Customs Revenue was Rs. 1,00,00,000. In March 1894, the general import duties were imposed and cotton goods were included in the dutiable list in December of the same year. The duty on cotton cloth was, however, lowered from 5 to 3½ per cent. in February 1896, cotton twist and yarn being at the same time wholly exempted. By 1894-95, therefore, Customs Revenue rose to Rs. 3,06,00,000, and since then gradually to Rs. 8,01,00,000 in 1911-12, a part of the increase since 1910-11 being due to increased duties on silver, tobacco and petroleum.

Growth of receipts from income tax.

350. The Assessed Taxes (Income Tax) have increased from Rs. 1,55,00,000 in 1890-91 to Rs. 2,29,00,000 in 1911-12, notwithstanding the exemption from the tax of incomes under Rs. 1,000 by Act XI of 1903 and the abolition by Act VI of 1902 of the Pandhari cess, a special income tax in the Central Provinces levied on incomes below Rs. 500. The receipts from income tax are obtained entirely from non-agricultural incomes and the growth of the revenue from this tax is an index of the prosperity of the classes who earn such incomes.

Growth of Registration Revenue.

351. The Registration Revenue amounted to Rs. 56,00,000 in 1890-91 and to Rs. 65,00,000 in 1911-12. This revenue is derived from the registration of instruments of sale and mortgage of property, and of contracts. Though the revenue is comparatively small in amount, its growth is also an unmistakable sign of progress.

Growth of Post Office and Telegraph business.

352. The growth of Post Office business, as indicated in the following statement, is another remarkable sign of the material progress of India, as a whole. During the period under enquiry, the number of post offices has increased by 100 per cent., the number of post-cards by over 320 per cent., the number of letters by 136 per cent., the number of packets by 409 per cent., newspapers by 111 per cent., and parcels by 457 per cent. The number of money orders has grown from 7,435,000 to 27,243,000, or by 266 per cent.; while the value has risen from Rs. 16,44,00,000 to the enormous sum of Rs. 48,71,00,000, or by 196 per cent. The number of Savings Bank accounts has increased from 409,000 to 1,501,000, and the deposits from Rs. 6,35,00,000 to Rs. 18,90,00,000, notwithstanding a reduction in the rate of interest allowed on Savings Bank deposits and certain restrictions* imposed on the total amount to be deposited each year in a single account and on the total balance of each account to be allowed to carry interest. These are unmistakable signs of the material progress of the country. Similar evidence is also afforded by the growth of telegraph business in India, the number of paid messages having risen from 3,407,000 in 1890-91 to 14,720,000 in 1911-12.

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* They have been mostly withdrawn since.

Statement showing the growth of Post Office business in India.

		NUMBER OF POSTAL ARTICLES CARRIED (IN THOUSANDS).					MONEY ORDERS.		SAVINGS BANKS.			
	Number of Post offices.	Post cards.	Letters.	Packets.	Newspapers.	Parcels.	Number (in thousands).	Value (in lakhs of rupees).	Number of accounts on the last day of the year.	Deposits (in lakhs of rupees).	Withdrawals (in lakhs of rupees)	Closing balance (in lakhs of rupees).
1890-91 .	9,410	101,062	179,678	10,375	24,935	1,902	7,435	16,44	409	2,68	2,42	6,35
1891-92 .	9,763	112,748	187,871	10,711	25,910	2,109	7,998	17,36	463	3,00	2,53	7,06
1892-93 .	10,138	119,803	191,212	12,149	26,638	2,170	8,462	18,15	521	3,28	2,79	7,82
1893-94 .	10,387	131,218	195,644	14,703	26,364	2,339	8,994	19,40	574	3,33	3,18	8,27
1894-95 .	10,714	143,107	204,043	16,248	28,145	2,562	9,677	20,58	612	3,26	3,35	8,40
1895-96 .	11,061	153,568	210,660	18,197	28,929	2,577	10,342	21,88	654	3,67	3,29	9,04
1896-97 .	11,431	166,803	220,147	19,341	29,778	2,709	11,284	23,42	713	4,51	4,22	9,64
1897-98 .	11,742	179,371	229,426	21,364	31,891	2,966	12,019	25,83	730	3,24	3,85	9,29
1898-99 .	11,986	189,462	229,672	25,039	32,123	2,515	12,128	26,26	756	3,31	3,44	9,43
1899-00 .	12,397	206,463	242,406	26,774	30,759	2,604	12,952	27,55	786	3,48	3,54	9,65
1900-01 .	12,970	218,351	250,858	28,303	32,091	2,679	13,421	28,45	817	3,62	3,51	10,04
1901-02 .	13,845	236,368	259,324	29,712	31,550	2,991	14,107	29,25	867	4,16	3,83	10,68
1902-03 .	14,736	253,758	266,800	32,709	32,558	3,472	15,869	30,30	922	4,35	3,93	11,42
1903-04 .	15,403	272,523	286,823	34,352	34,263	3,942	17,066	32,11	988	4,66	4,10	12,33
1904-05 .	16,033	299,486	298,221	39,593	37,078	4,541	18,301	33,92	1,059	5,17	4,48	13,41
1905-06 .	16,775	324,260	320,866	43,719	40,201	4,955	20,296	36,26	1,116	5,11	4,92	13,99
1906-07 .	17,180	345,166	338,541	46,522	44,046	5,282	21,621	38,72	1,190	5,49	5,13	14,77
1907-08 .	17,777	362,547	360,973	48,941	48,294	5,884	22,847	41,80	1,263	5,52	5,53	15,18
1908-09 .	18,399	383,746	384,176	51,084	50,108	6,141	23,878	42,78	1,319	5,23	5,61	15,23
1909-10 .	18,642	403,597	405,711	52,408	51,396	6,412	4,669	43,57	1,379	5,55	5,37	15,87
1910-11 .	18,813	418,438	413,678	56,918	49,252	6,862	25,634	46,00	1,430	6,04	5,45	16,92
1911-12 .	18,801	424,691	424,727	52,765*	52,612	10,598*	27,243	48,71	1,501	8,28	6,81	18,90

Statement showing the growth of Telegraph business in India.

	NUMBER OF MILES.		Number of Signal Offices.	NUMBER OF PAID MESSAGES (IN THOUSANDS).			VALUE OF MESSAGES (IN LAKHS OF RUPEES).		
	Line.	Wire and cable.		Inland.	Foreign.	TOTAL.	Inland.	Foreign.	TOTAL.
1890-91 . . .	37,070	113,763	949	2,917	490	3,407	35	17	52
1891-92 . . .	38,625	120,412	1,001	3,289	520	3,809	42	15	57
1892-93 . . .	41,030	126,526	1,100	3,441	540	3,981	41	17	58
1893-94 . . .	42,707	134,529	1,224	3,630	555	4,185	42	19	61
1894-95 . . .	44,648	138,526	1,362	3,817	574	4,391	44	21	65
1895-96 . . .	46,374	143,188	1,461	4,095	642	4,737	47	24	71
1896-97 . . .	48,584	148,404	1,563	4,387	691	5,078	48	22	70
1897-98 . . .	50,305	155,088	1,634	4,968	745	5,713	69	22	91
1898-99 . . .	51,768	160,925	1,719	4,696	753	5,449	51	20	71
1899-00 . . .	52,909	171,049	1,851	5,403	834	6,237	61	22	83
1900-01 . . .	55,055	182,179	1,939	5,549	900	6,449	67	26	93
1901-02 . . .	55,827	190,887	2,006	5,567	909	6,476	62	25	87
1902-03 . . .	56,830	200,533	2,051	5,841	901	6,742	65	21	86
1903-04 . . .	59,692	212,330	2,127	6,394	913	7,307	64	21	85
1904-05 . . .	61,684	227,749	2,189	8,083	1,015	9,098	64	24	88
1905-06 . . .	64,730	243,840	2,309	9,354	1,107	10,461	69	23	92
1906-07 . .	67,537	259,948	2,438	10,199	1,186	11,385	73	22	95
1907-08 . . .	68,940	271,944	2,544	11,506	1,244	12,750	77	23	1,00
1908-09 . .	70,065	280,595	2,658	11,838	1,169	13,007	77	20	97
1909-10 . . .	72,746	287,266	2,762	10,798	1,287	12,085	64	22	86
1910-11 . . .	74,828	292,001	2,856	11,673	1,417	13,090	68	25	93
1911-12 . .	76,578	299,343	2,958	13,185	1,535	14,720	77	27	1,04

* Includes value-payable unregistered packets.

Development of railway traffic.

353. Equally interesting are the figures contained in the table given on page 79 showing the development of railway traffic in India. The total number of passengers has between 1890 and 1911 increased from 114,000,000 to 390,000,000, or an increase of 242 per cent., while the passenger mileage, *i.e.*, the total mileage travelled, has increased from 4,787,000,000 miles to 14,373,000,000 miles, or an increase of 200 per cent. The average distance travelled over by each passenger has fallen from 41·96 miles to 36·87 miles, showing a tendency on the part of the people to travel even short distances by rail instead of on foot, an unmistakable sign of an improvement in their general financial position. No less striking evidence of progress is given by the quantity of goods carried by rail and their ton-mileage. The total quantity of goods carried rose from 23,000,000 tons in 1890 to 71,000,000 in 1911 and the ton-mileage from 3,509,000,000 tons per mile to 13.358,000,000 tons, while the average distance carried has increased from 155 miles to 187 miles, showing the gradual linking up of marts in India more and more distant from each other.

Growth of Life Insurance in India.

354. The following statement shows the growth of life insurance in India, as indicated by the transactions of 17 life insurance companies. Most of the companies in India were requested to furnish statistics, but only a few have supplied them. The remarkable development of life insurance business in India shown by the table well illustrates that the people of India have appreciated, within the comparatively small period under enquiry, the necessity of providing for the future. This also cannot but be taken as a sign of material prosperity of the country.

Statement showing the number and amount of policies issued by 17 Insurance Companies in India during 1890—1912.

Years	Number of Policies.		Amount of Policies.	
	Total.	Index number.	Total.	Index number.
1890	315	72	11,59,750	74
1891	296	67	12,37,700	80
1892	464	105	16,80,600	108
1893	543	124	15,65,700	101
1894	580	132	21,24,450	137
1895	684	156	22.25,230	143
1896	617	140	16,94,915	109
1897	924	210	23,60,110	152
1898	2,667	607	59,66.010	384
1899	2,063	469	45,91,845	296
1900	2,242	510	51,99.937	335
1901	2,363	538	47,01,755	303
1902	3,173	722	64,21,605	413
1903	4,240	965	81,41,244	524
1904	4,763	1,083	89.23,649	574
1905	4,783	1,088	87.05.893	560
1906	5,394	1,227	97.61,317	628
1907	8,569	1,949	1,40.83,359	906
1908	10,568	2,404	1,78,29,400	1,148
1909	12,696	2,888	2,23,95,980	1,442
1910	18,606	4,232	2,83.03,106	1.822
1911	18,458	4,199	2,84,15,784	1,829
1912	14,723	3,349	2.62,79.307	1,691

CHAPTER XIII.

Effects of the Rise of Prices.

Effect on Different Sections of the Community.

Necessity and difficulties of ascertaining numerical strength of different sections of the community.

355. In estimating the effect of the rise in prices on the different sections of the community, it is necessary to ascertain the numerical strength of the different sections and to see whether alterations, in recent years, in the distribution of the population among the different occupations afford any indication of the relative prosperity of those following any particular occupation. Such prosperity would attract people from other less lucrative occupations and would cause an increase in the number following the more lucrative ones. The statistics of occupation, when used in conjunction with statistics of production and of wages, are also a useful index of the prosperity or the reverse of the various classes of the population. But it has already been pointed out that owing to a radical change in the method of the classification of occupations adopted in the last census, as compared with the previous censuses, no comparison can be made with the figures of the census of 1891. A comparison has, however, been attempted between the figures of 1901 and 1911, but here also the discrepancies are very considerable and allowances have to be made because the sources of error are great. They have been described in detail in Appendix K. The chief causes of the discrepancies are: (1) In 1901, a very large number of persons were insufficiently described and were classed under the head "Labourers and workmen otherwise unspecified;" on the present occasion, owing to greater care shown by the enumerators, the number under that class has been considerably reduced. (2) In 1901, persons who sublet some or all of their lands to tenants were returned as rent-receivers, whereas in 1911 they have been classified as ordinary cultivators. (3) In determining the chief means of support in the case of dual or mixed occupations, different methods have been followed in the two censuses. (4) Public servants were shown under one class in the census of 1901, whereas in the census of 1911 they have been distributed under different classes according to the nature of the work on which they are employed; and (5) greater care has been taken in the census of 1911 to distinguish between makers and sellers.

Comparison between censuses of 1901 and 1911.

356. The following statement shows the classification by occupation of the total population of India, according to the censuses of 1901 and 1911:—

Distribution of population by selected occupations—1901 and 1911.

[Omitting 000.]

Occupations.	Total population supported in India.		Percentage by classes and sub-classes.	
	1901.	1911.	1901.	1911.
A.—Production of raw materials . .	**152,107**	**170,599**	**69·1**	**73·8**
I.—Exploitation of the surface of the earth .	**151,906**	**170,161**	**69·0**	**73·6**
1. Pasture and agriculture	**150,859**	**168,722**	..	..
Income from rent of agricultural land .	34,427	17,947	..	..
Ordinary cultivators	87,271	114,206	..	..
Farm servants and field labourers. .	24,108	30,725	..	..
Growers of special products. . .	1,366	1,386	..	..
Raising of farm stock. . . .	2,578	3,327	..	..
Agents, etc.	1,109	1,131	..	..
2. Fishing and hunting	**1,047**	**1,439**	..	..
Fishing	1,012	1,406	..	..
Hunting	35	33	..	..
II.—Extraction of minerals . . .	201	**398**	·1	**·2**

Distribution of population by selected occupations—1901 and 1911—contd.

[Omitting 000.]

Occupations.	Total population supported in India.		Percentage by classes and sub-classes.	
	1901.	1911.	1901.	1911.
B.—TRANSFORMATION AND EMPLOYMENT OF RAW MATERIALS	**42,369**	**41,878**	**19·2**	**18·1**
III.—Industry	**26,009**	**25,883**	**11·8**	**11·2**
Textiles	6,512	6,037	..	..
Cotton	5,486	4,791	..	..
Others	1,026	1,246	..	..
Hides of skins and hard materials from the animal kingdom	679	468	..	..
Wood	2,328	2,690	..	..
Metals	1,468	1,337	..	..
Ceramics	1,531	1,613	..	..
Chemical products properly so-called and analogous	1,051	974	..	..
Food industries	2,801	2,843	..	..
Industries of dress and toilet	5,486	5,510	..	..
Building industries	1,307	1,599	..	..
Industries of luxury and those pertaining to literature and the arts or sciences	1,451	1,605	..	..
Other industries	1,395	1,207	..	..
IV.—Transport	**3,129**	**3,875**	**1·4**	**1·7**
By water	627	748	..	..
" road	1,838	2,088	..	..
" rail	542	877	..	..
Other transport	122	162	..	..
V.—Trade	**13,231**	**12,120**	**6·0**	**5·2**
Banks establishment of credit, exchange and insurance	805	780	..	..
Trade in textiles	800	818	..	..
Other trade in food stuffs	8,100	6,870	..	..
Others	3,526	3,652	..	
C.—PUBLIC ADMINISTRATION AND LIBERAL ARTS	**6,959**	**6,715**	**3·2**	**2·9**
VI.—Public force	1,397	1,142	·6	·6
VII.—Public administration	1,674	1,379	·7	·6
VIII.—Professions and liberal arts	3,455	3,598	1·5	1·6
IX.—Others	433	296	·4	·1
D.—MISCELLANEOUS	**18,604**	**11,836**	**8·5**	**5·2**
X.—Domestic service	3,343	3,304	1·5	1·5
XI.—Unproductive	3,069	2,345	1·4	1·0
XII.—Others	12,192	6,187	5·6	2·7
GRAND TOTAL	**220,039**	**230,988**	**100**	**100**

Land-owners and cultivators.

357. Under the first head, "Exploitation of the surface of the earth," the main occupations are those of rent-receivers and ordinary cultivators. The number of rent-receivers according to the census of 1911 is 52 per cent. of the number in the previous census, the difference being 16,480,000. This large decrease is obviously due to a change in the system of classification. On the other hand, the number of ordinary cultivators according to the census of 1911 is 26,935,000 more than the number according to the previous census. If the two heads are combined, the total number according to the census of 1911 would be 10,455,000 more than that of the previous census, or an increase of 8·6 per cent. Even the combined totals of the two classes show

differences in some circles, which throw doubt on the correctness of the classification at either of the two censuses. Thus in Sind, the total of the two classes has risen from 622,000 to 1,885,000, which gives an increase of 1,263,000. This is undoubtedly the result of an error in classification. The number of farm-servants and field-labourers as well as general labourers, on the other hand, is shown to have decreased from 1,447,000 to 271,000, showing a decrease of 1,176,000. It is quite possible that a number of labourers have, in consequence of an improvement in their material position, become cultivators and succeeded in bringing extensive tracts of new lands under cultivation due to an extension of irrigation works, but it is hardly possible that the increase could be so large. On the other hand, large decreases are shown in the Punjab East and Chota Nagpur circles in the number of agriculturists, while large increases are shown in the number of labourers. On the whole, though no very great reliance can be placed on the classification of the population by occupation in the census returns, there is no doubt that the number of agriculturists have increased more in proportion than either the total population or the total number of labourers. The increase in the number of agriculturists may be taken as indicating that the profits of agriculture were such as to attract workers from other occupations to agriculture. This would appear to have been the case, especially in Assam, Bengal Northern and Eastern, Agra Provinces East, Agra Provinces North and West including Oudh, Punjab West, Berar, Central Provinces, Madras North-East and Madras North. In some of the circles, notably in Agra Provinces East and Agra Provinces North and West including Oudh, the total population has decreased in consequence of the ravages of plague and malaria, but notwithstanding this decrease there has been a large increase in the number of agriculturists.

Farm-servants and field-labourers.

358. Under "Farm-servants and Field-labourers," the table shows an increase in 1911 of 6,617,000, or 27·4 per cent. This also is, undoubtedly, a result of misclassification. In the census of 1901, a considerable number of labourers was in the absence of accurate information classified under a special head, "General labourers," but as already mentioned, in the last census, they have been distributed under various heads according to the nature of their work, and only those, who are employed on work of a miscellaneous kind, or for whom accurate information was not available, have been shown under the special head, "Others," under "Miscellaneous." Under this sub-head, the decrease of 6,005,000 is thus due to a change in the system of classification. It is necessary, therefore, to combine the two heads—"Farm-servants and Field-labourers" and "Others" under "Miscellaneous." The two heads together show an increase of 612,000, or 1·7 per cent. The real excess is undoubtedly more, because a part of those who were in the previous census classified under the special head, "General labourers," have, as explained above, now been classified under heads other than the two proposed to be combined, and in Sind there is a large decrease due presumably to errors in classification. But, on the whole, the number of labourers has increased in a much smaller proportion than the number of agriculturists. The decrease is specially noticeable in Agra Provinces East, Agra Provinces North and West, Sind and Berar. A part of the decrease in the first two circles might be due to the havoc caused by plague and malaria among the labouring classes, but these scourges can hardly account for the whole of the decrease. It seems that in the circles mentioned either the material position of labourers has improved so substantially as to enable many of them to take recourse to agriculture or that a large proportion of the people hitherto earning their livelihood as labourers have now taken recourse to industrial pursuits.

Growth of agriculturists and labourers.

359. To sum up, both agriculturists and labourers, more especially the former, have increased more than the other classes, and this is not surprising, in view of the increased profits of agriculture and a large increase in the wages of agricultural labourers.

Industry, Transport, and Trade.

360. It is to be regretted that cash rents for the Punjab non-occupancy and class V (Trade) are instructive as indicative of the changes in the industrial organisation of India. It is more correct to group these classes than to keep them apart in view of the liability to errors of classification, especially in the census of 1901. An examination of the groups which make up class III and the groups which make up class V will show the difficulty of classification and the liability to errors on the part of those filling in the census forms. "Textiles" is a group of class III, while "Trade in textiles" is a group of class V. In 15 out of the 24 circles, there has been an increase under classes III, IV, and V. The circles in which decreases are found are Madras, Bengal Northern and Eastern Bihar, Agra Provinces East, Agra Provinces North and West including Oudh, Punjab East, Konkan, Deccan and Central Provinces. In Bengal Northern and Eastern the decrease is 83,000. The high profits of jute and cotton cultivation have attracted workers from classes III, IV, and V to agriculture, and handloom weavers have decreased in most of the circles owing to the unprofitableness and impossibility of competition with the more highly organised mill industries. On the other hand, there has been a striking increase in the number employed in the jute industry in Bengal Southern and Western; in the number engaged in trade in the ports of Calcutta, Bombay and Karachi and in Madras South and Punjab West; in the mill industries in Calcutta and Bombay and in the number of people employed on the construction of railways in many circles. The number of toddy-drawers in Madras West has also increased by 30,000. The number engaged in hides and skins shows a decrease, which is not, it is believed, entirely real in view of the fact that the census of 1901 was taken in post-famine, if not in famine, times when the number of cattle slaughtered was unusually great. It has been noticed elsewhere that there has been a large increase in the export of raw hides and skins, which are allowed to be imported into some countries free of duty, while a heavy duty is realised on the imports of tanned hides and dressed skins. This, coupled with an increasing import of European-made shoes and other leather articles, has evidently led to a large decline in the leather industry in India. There is also a decrease in the number of rice grinders and huskers and workers in metals and chemicals in consequence of the introduction of rice mills worked by machinery and the importation of larger quantities of metal manufactures and chemicals from foreign countries. In class IV (Transport), there has been a decided increase, a part of which is due to public servants employed on Railways and the Post and Telegraphs having been classified under this head, while in 1901 they were classified under "Public administration." In the Bombay Presidency, especially in the cities of Bombay and Karachi, industrial development has increased steadily. In Deccan and Konkan, no increase is apparent. In Deccan, the number of those engaged under "Fish," "Hay" and "Fodder" has increased. The decrease in Deccan and in Konkan may be due to the increased profits of agriculture having attracted workers to this occupation. In Bundelkhand alone, of the circles in the United Provinces, there is an increase. In the Punjab East there is a decrease between the census of 1901 and 1911 in the number of those engaged in Industry, Trade and Transport. In this circle, however, the total population has decreased, although class I (Agriculture) has increased. An explanation of the decrease lies in the prevalence of plague and malaria and also in the attraction which agriculture presents

in these days of high prices. In Berar, there is an increase in Industry, Trade and Transport from 437,000 to 463,000. As already noted, this increase has not spread to the Central Provinces, the returns of which show a decrease from 1,919,000 to 1,860,000. The higher profits of agriculture rather than errors in classification would explain the decrease in this circle.

361. Taking India as a whole, although there has been an increase in industrial prosperity and development in the period between the censuses of 1901 and 1911, competition with imported articles and the products of factories, organised on the latest methods and worked by machinery, have ruined many of the handicrafts, especially the handloom industry and compelled people to leave their ancestral vocations for other means of livelihood, notably agriculture. It is not, therefore, surprising that there should be an actual decrease in the number of men depending upon industrial employment.

Growth of population in cities and towns.

362. The following statement shows the growth of population in cities and towns with a population varying from 5,000 to 100,000 and over. It would be seen that during the decade ending 1901 there was a large exodus from rural areas into towns where wage-earners obtain better remuneration for their labour. In the last decade also, the exodus continued, but on a much smaller scale. This is not surprising in view of the large increase which has taken place in wages in rural areas during the period. Towns do not now possess the same attractions for wage-earners that they did before.

Urban Population in India.

—	Total population.			Index numbers.		
	1891.	1901.	1911.	1891.	1901.	1911.
Total population of towns having a population of 100,000 and over.	6,250,765	6,704,196	7,164,433	100	107	115
Total population of towns having a population of 50,000—100,000.	2,629,974	2,861,118	2,921,630	100	109	111
Total population of towns having a population of 20,000—50,000.	5,099,770	5,473,989	5,545,820	100	107	109
Total population of towns having a population of 10,000—20,000.	5,410,063	5,975,180	6,163,954	100	110	114
Total population of towns having a population of 5,000—10,000.	5,762,985	5,993,471	5,944,503	100	104	103
TOTAL .	**25,153,557**	**27,007,954**	**27,740,340**	**100**	**107**	**111**

Effect on agriculturists.

363. In dealing with the effect of the rise of prices on the different sections of the community, we should consider the nature of the income and expenditure of each section, with a view to see how far they are capable of adjusting themselves to the altered value of money. Agriculturists form by far the majority of the population in India and their income consisting mainly of the sale-proceeds of their produce has increased with the rise of prices. A vast number of them, however, earn their livelihood for a part of the year, when their

fields do not require their services, by working as day-labourers or as mill-hands or on railway construction. Their wages in these occupations have also increased, as will be shown later on, more rapidly than prices. The income of agriculturists has, therefore, risen as fast as, if not faster than, prices. Their expenditure, on the other hand, consists of the cost of cultivating their lands, the rents payable by them and the cost of their living. The cost of their cultivation is limited. The vast majority of them work on their fields themselves and employ hired labour only occasionally. Unless famine denude them of all their resources, they use their own seeds and their own cattle and manure. Irrigation also, except when they have to pay canal water rates or excavate new wells, costs but little. The actual cash outlay on cultivation is not, therefore, a heavy drain on their resources, except when new cattle has to be purchased or new wells have to be excavated. As regards their cost of living, notwithstanding an immense improvement in their standard of living, their wants are very limited. Foodgrains, which form the main item of their family budget, are generally the produce of their own lands. The only items of expenditure which press heavily on them are the rents to be paid and the expenditure on marriages and other social ceremonies. The question of rents is dealt with in detail later on, the general conclusion being that, with the restrictions imposed by Government on the powers of landlords for enhancing rents, they have not, on the whole, increased faster than the prices of agricultural produce, though cases of rack-renting are not altogether unknown. The only adverse circumstances which they are unable to control are the periodical recurrence of calamities of the seasons, more especially in areas with a precarious rainfall, and their traditional extravagance on occasions of marriage and other social ceremonies. It is only natural, then, that they should be thriving in tracts which are more or less immune from the vicissitudes of the seasons, while in areas where during the last 15 years the seasons have been more unfavourable than usual they should have fared badly. They have prospered most in tracts where the increasing profits of the cultivation of jute and cotton have tempted them to extend their cultivation of these crops, or where extension of irrigation has enabled them to convert dreary sands and jungles into smiling fields of wheat. It is in these areas that the profits of agriculture have increased more and more with the rise in prices and have attracted people from other occupations to agriculture.

The effect of the rise of prices on rents — the scope of the rent statistics.

364. The question as to how far the rise of prices has affected rents, *i.e.*, the distribution of the profits of cultivation between landlords and tenants, is of exceptional interest, although of great difficulty. The compilation of rent statistics has been described in Appendix L. The statistics refer only to the United Provinces, the Central Provinces, the Punjab, Bihar, and Bengal. In Bengal, Bihar, Oudh and the Central Provinces, almost the whole of the land is given out on rent by landlords who hold it from Government; the greater portion of Agra and half the area of the Punjab are similarly let out. This practice, although by no means unknown, is, however, rare in the ryotwari provinces of Bombay, Madras (all but the northern portion), Berar, Assam (most of), and Burma. In these latter areas, there is, generally speaking, no intermediate class of landlords between the Government and the cultivators, and the latter are in a *quasi*-proprietary position, having only the revenue, and no separate rent, to pay. The landlord class in India includes the descendants of the hereditary chiefs, of former revenue farmers, of heads of village bodies, of grantees under former governments and the like, the only thing which they have in common being their recognition by Government as persons with whom a settlement of the land revenue is made. There are, it is to be noted, in large tracts of Northern India, proprietary

village bodies in which the members of the village are co-sharers in the landlord rights, and are jointly and severally responsible to Government for the revenue. Between the landlords and the tenant cultivators, there are often classes of subordinate proprietors, sometimes descendants of former full proprietors superseded by conquering races. These rights are found in many gradations and in their weaker forms are barely distinguishable from the higher tenant rights. In the non-ryotwari areas the net produce of the soil is shared, in an unequal degree, among the Government, landlord and tenant.

Cash rents for the Central Provinces.

365. Cash rents for the Central Provinces are divided into four classes of tenancies, *viz.*, absolute occupancy, occupancy, ordinary, and sub-tenancies of *sir* lands. The cash rents of absolute occupancy tenants have increased by 12 per cent. in the quinquennium 1895-96 to 1899-1900 (1890-91 to 1894-95 = 100); 17 per cent. between 1900-01 and 1904-05; and 15 per cent. between 1905-06 and 1909-10. Occupancy tenants' cash rents did not rise till the quinquennium 1905-06 to 1909-10, when the average was 6 per cent. higher than in the basic period. Ordinary tenants' rents have decreased by 15 per cent. in the period 1905-06 to 1909-10, as compared with the standard period, while the cash rents of sub-tenants of *sir* lands have increased 11 per cent. during the period 1905-06 to 1909-10. In dealing with the rent statistics of the Central Provinces it must be remembered that these rents rose enormously during the 30 years' settlement made in the sixties, in the old Saugor and Nerbudda territories, where the idea of proprietary rights (which correspond to the zamindari rights of the United Provinces) had grown up. In the areas taken over in 1852 on the escheat of the Nagpur Province, where the proprietary rights were largely a new conception, the rise in rents made by the landlords was not general, but limited to particular proprietaries. After the 30 years' settlement, the power of the landlord was so restricted that the desire to raise rents gave way, while the bad years of the nineties made an extensive rent enhancement impossible. The rent of under-tenants can only be raised at settlement; that of occupancy tenants only once in 10 years, and of ordinary tenants once in 7 years. The landlords have found it so difficult to secure enhancements through the Revenue Courts that they have given up enhancement, as a practice, in favour of exacting *nazaranas* on vacant holdings. It is obvious that this is a temptation to make holdings vacant by forcible ejectment, or by connivance in surrenders to creditors, transfer being prohibited. In the Central Provinces practically the whole enhancement of rent now obtained is that imposed by the Settlement Officer at settlement; and the small increases that may be secured by letting out the vacant land on a higher rental are obscured when measured by the acre, by the inclusion of new and poor lands in the rent-paying area. The Central Provinces rents are non-competitive rents except in the case of home-farm settlement, and of rents paid by sub-tenants of tenants and *malik makbuzas*. The landlord, however, gets his share of the enhanced prices (1) on his home-farm as the rise occurs, (2) on his share of the rent imposed by the Settlement Officer, and (3) on the huge *nazaranas* which ryots are willing to pay in view of the enhanced value of the land consequent on the rise of prices. The tenant gets the full value of the rise of prices so long as his rent is not raised, which in the Central Provinces is, in most cases, only once in 20 years, but, if he is indebted, some share of the rise goes into the pockets of middlemen and creditors. Higher prices in the Central Provinces have, as elsewhere, tended to improve cultivation and better outturns.

Cash rents for the United Provinces.

366. Rents have increased in Agra and Oudh in the case both of privileged and ordinary tenants. The statistics of 1895-96 to 1899-1900 show an average rise of 1 and 2 per cent. in the case of the Agra privileged and

ordinary tenants, respectively; in 1900-01 to 1904-05, a rise of 5 and 8 per cent.; and in 1905-06 to 1909-10, a rise of 9 and 17 per cent., respectively. Cash rents in Oudh show a decrease of 3 per cent. in the case of the privileged tenants during the quinquennium 1895-96 to 1899-1900; but in the following quinquennium (1900-01 to 1904-05), there was a rise of 5 per cent., and in 1905-06 to 1909-10 of 10 per cent., in comparison with the quinquennium 1890-91 to 1894-95. Ordinary tenants' cash rents have increased steadily throughout the two decades as may be seen from the following figures :—1890-91 to 1894-95, 100; 1895-96 to 1899-1900, 106; 1900-01 to 1904-05, 117; 1905-06 to 1909-10, 126.

367. Mr. W. H. Moreland made an enquiry last year into the rise of rents in the United Provinces and obtained information regarding the annual average rise since settlement (which varies by districts), taking the first year for which figures were received, calculating the percentage of rise in the period, and dividing this by the number of years. The figures are as follows :—

District.	AVERAGE ANNUAL RISE SINCE SETTLEMENT.		Average annual rise, 1904-05 to 1910-11.
	No. of years since last settlement.	Average rise.	
Lucknow	15	1·4	1·8
Unao	16	1·0	1·7
Rae Bareli	14	1·2	1·0
Sitapur	13	1·1	0·2
Hardoi	12	1·2	1·7
Kheri	11	2·8	1·1
Fyzabad	15	0·7	1·2
*Gonda	7	0·6	0·7
Bahraich	12	1·4	1·1
Sultanpur	12	1·0	0·5
Partabgarh	16	0·8	0·7
Bara Banki	15	1·3	1·3

* The two periods are almost identical in Gonda.

368. He concludes that for the whole of Oudh, the average annual rise since 1904-05 to 1910-11 has been at the rate of 1 per cent. or more than the maximum rise permitted by law; and as regards Agra Provinces, he points out that a large proportion of the land is held by occupancy ryots at rents which are much below the competition rate, and that there is no question of these rents being generally excessive,—in fact they are, in some cases, so low as to tempt the larger occupancy-tenants to sublet. In the opinion of Mr. Moreland the competition rents are rising everywhere excepting in Bundelkhand, and in the west of the United Provinces the rise is very rapid.

Cash rents for the Punjab.

369. It is to be regretted that cash rents for the Punjab non-occupancy tenants other than those paying at revenue rates are not available from the year 1901-02. An enhancement of rent in the case of non-occupancy tenants in the Punjab, though affected by local custom, is largely the result of open competition and, if our figures were complete, the effect of the rise of prices on rents would be most successfully shown in the rental statistics for this class. In the years for which statistics are available, there is an increase from 96 in 1891-92 to 106 in 1894-95; to 116 in 1898-99; and to 121 in 1900-01.

Land cess for Bengal and Bihar.

370. The statements showing the growth of land cess in typical districts in Bihar and Bengal also show an increase throughout the period. Taking

the average of 1890-91 to 1894-95 as equal to 100, the rise in Bihar was to 101 in 1893-94; to 108 in 1899-1900; to 113 in 1903-04; to 115 in 1905-06; to 116 in 1909-10; and to 119 in 1910-11. Similarly, in the selected districts in Bengal, the rise was to 101 in 1893-94; to 108 in 1899-1900; to 118 in 1903-04; to 120 in 1905-06; to 121 in 1909-10; and to 122 in 1910-11. These statistics of Bihar and Bengal include the rental valuation, for cess purposes, of *nij-jote* (*i.e.*, the land forming part of the landholder's own cultivation) and also of rent-free lands. The rental collected by the landlords could only be ascertained by an examination of the returns filed by individual landlords which would be a work of enormous labour. Moreover, the returns are only kept for 12 years and none prior to 1900 could be available. The returns, it must be noted, are not tested and represent only the statements of the landlords as to their rental, and it is impossible to say how far these are correct. There are, however, two counteracting agencies at work. In the first place, there is a natural tendency to understate rents in order to secure a low assessment of the cess; on the other, there is a provision in section XX(*b*) of the Cess Act that a landlord cannot recover rents in excess of the amounts stated in his return; and it is said by experienced officers that rents in Bengal are more often overstated than understated in the cess returns. Then, again, a part of the increase is due to assessment of new lands brought under cultivation.

Government's share of the gross produce.

371. Although prices have risen considerably, Government do not seem to have received the full share which they were entitled to obtain from increased prices. It is true that land revenue in the temporarily settled tracts of India has risen considerably between 1890-91 and 1910-11, but it should be borne in mind that cultivation also has increased in the same period, and enhancements in Government assessments are due, not only to enhancement of prices, but also to extension of cultivation. It was the impression of all experienced Settlement Officers consulted that cash assessments did not bear the same proportion to the gross produce as in the nineties, and, therefore, more of the gross produce was left to be divided between landlords and tenants.

The views of experienced Revenue Officers.

372. Settlements of revenue being fixed in cash at intervals of 20 or 30 years—usually 30 years—Government assessments have not increased in the same proportion as prices. Moreover, enhancements of revenue at times of re-assessment are not based as a rule directly on the rise in prices, but on the rise of rents or on the value of land. These factors rise slower than prices and so enhancements do not follow the full rise in the price of the produce. An eminent authority on land revenue believes that " if we make due allowance for deficiency in the earlier statistics and alterations in the character of the cultivation, we may say roughly that some 10 or 15 per cent. in the increase in the assessment has been due directly or indirectly to the rise, during the period for which expiring settlements were made, in the price of agricultural products."

Grain and cash rents.

373. As regards the distribution of the produce between landlords and tenants, tenants pay rents either in grain or in cash, and in recent years cash rents have been slowly replacing grain rents. Grain rents are, however, still not uncommon in the United Provinces, the Punjab and some districts of Behar. The share of the produce taken by the landlord is generally invariable, and though it may fluctuate from time to time, such variations as do occur can seldom be ascribed to any corresponding variations in the price of the produce. Generally speaking, therefore, in the case of rent taken in kind (in the form of a share of the produce), the landlord and the tenant obtain the same percentage of profit by the rise in the price of the produce.

Limitations of the statistics of cash rents.

374. The summary tables given in the statistical volumes appended to the report refer to cash rents and, as already noted in the description of rent statistics, they must be accepted with reservation owing to such factors as (1) the improvement in these statistics (tending to show a larger increase than was formerly the case when concealment of the amount of rent taken by the landlord was more frequent), and (2) the exclusion from these statistics of premia (*nazarana*, *salami*, etc.) which in recent years have been adopted to evade the land laws that place restrictions on the enhancement of rents. The other limiting factors, such as alterations in the classification of the land from which the rent is taken, and increase in rents at a new settlement owing to factors in operation outside the period under examination (*i.e.*, before 1890), must also be remembered.

Ordinary or unprivileged tenants.

375. In the Central Provinces, the United Provinces and Bengal, the rents paid by ordinary tenants are subjected to a certain amount of legal control, but are very largely at the discretion of the landlord. In Bengal, the ordinary tenants (not a very important class so far as numbers are concerned) can have a fair rent fixed by a Court of Law, which can be enhanced after a period of five years. In Agra Provinces, an ordinary tenant's rent, when once determined, can be enhanced at an interval of five or seven years. In Oudh, the rent may be increased at intervals of seven years and by an amount not exceeding 6¼ per cent.; in the Central Provinces, the increase can be made at intervals of seven years and is limited to 33 per cent.; similarly, the rents of sub-tenants in the Central Provinces can be modified at settlements; and in Bengal, these can be raised to an excess of 25 or 50 per cent. over the rent paid by the tenant. It has already been pointed out that the limits prescribed by law are not always observed in practice. With this exception, however, it may be laid down that the rent laws, while preventing sudden enhancements, do not stand in the way of a gradual increase of rents in sympathy with the increase of prices.

Privileged tenants.

376. Next, with regard to privileged tenants, the general result of our enquiries is that they are able to keep in their hands a considerable share of the increased profit due to the rise in the prices of the gross produce. An increase of rent by the landlord is difficult as regards privileged tenants. In a small number of cases no enhancement is possible, the cash rent of the privileged tenants being fixed. Sometimes, however, there are intervals between successive enhancements as in the case of the unprivileged tenants noted above. An occupancy tenant, in Bengal, for example—and this class of tenants is by far the largest—may have his rent raised by contract by only two annas per rupee and at an interval of fifteen years. An enhancement by suit can, however, be made both in Bengal and in the United Provinces to bring the rents up to the prevailing rates of the neighbourhood. There is also, in theory, a power of obtaining enhancement by suit in the United Provinces and Bengal on the ground of a rise in the price of produce, but, owing to the difficulty of proving the rise of prices, enhancements of rents on these grounds are difficult to obtain. In the thickly populated parts of Bengal and also in those parts where no record of rights has been prepared, there can be no doubt, according to the experienced Settlement Officers consulted, that the law regarding enhancement is often, if not commonly, evaded.

General conclusions as to the rise of rents.

377. The general conclusions that may be drawn from the statistics of cash rents for the Central Provinces, the United Provinces, and the Punjab, and also from the road-cess returns of Bengal and Bihar—(which contain the gross rentals of districts according to the latest revaluation—a system introduced under Bengal Act X of 1871)—are (1) that there have been

comparatively large increases among the unprotected classes of tenants, for example, among the non-occupancy tenants in the Punjab, the ordinary tenants in Oudh and Agra Provinces and the sub-tenants in the Central Provinces; and that (2) there has been a comparatively small rise among the privileged tenants. From this it may also be concluded that landholders who do not cultivate their lands on their own account but live upon rents realised from tenants to whom their lands have been let out on tenures of a more or less permanent nature, have not been able to raise their income proportionately to the rise of prices and have consequently been adversely affected by it.

Agricultural indebtedness.

378. Witnesses were almost unanimous in saying that, except in some tracts where the agriculturists are peculiarly advantageously placed, they are as indebted now as they were before, if not more. It was not possible to collect any reliable statistics to show the extent of the debt of the agriculturists in different periods, and it is only from such statistics that any definite conclusions can be drawn regarding the increase of their indebtedness or otherwise. In 1895, Sir Frederick Nicholson attempted to estimate the amount of such indebtedness in the Madras Presidency by collecting statistics of the value of lands mortgaged by cultivators and by making a rough estimate of the cash and grain debts not secured by mortgages. His estimates were, however, admittedly very crude and incomplete. Moreover, even such rough and incomplete estimates are not available for the other provinces for any of the earlier years of the period under enquiry, nor for any of the provinces at the present day. In the absence of any statistical data, I had to fall back upon what information could be gathered during our tours.

379. The Indian cultivator is, as a rule, thriftless, and extravagant and much addicted to litigation. He lacks that business education "which leads the ryot to restrain his tendency to borrow and which enables him to calculate the result of expenditure whether on improvements or otherwise." In a good year, his ignorance and improvidence make him spend the whole of his surplus on marriages and festivities, and his extravagance on such occasions often leads him even in good years to the doors of the money-lender. A ryot would stop at no extravagance which would enable him, when marrying one of his children or performing any funeral or other social ceremony, to show more ostentation than his fellows, and cases are of quite common occurrence of men spending sums equal to five years' income or even more on a single ceremony.

380. A settlement report for an Eastern Bengal district quotes a case where a well-to-do cultivator died leaving about Rs. 600 in cash and grain. At the *Sradh* ceremony which followed, his son entertained several hundred guests for each of whom 2½ seers of food were provided. This meant that twice the amount of food ordinarily taken by a person was doled out and the whole of this large sum (large for the cultivator) was squandered. An official of the Narsinghpur District in the Central Provinces wrote in 1902 as follows:—"The effects of a life's frugality are nullified by the celebration of a single marriage in the cultivator's family. His extravagance on these occasions forms a disagreeable contrast to the frugality of his general life."

381. This state of things prevails everywhere in India and is not a peculiar feature of any particular tract. This habitual extravagance has been the curse of the country. The cultivator cannot and will not save out of his surplus in a good year, and in a bad year, as he has no savings to fall back upon, he cannot exist without the *mahajan's* help.

382. With increased wealth in the country, there are now more persons with money to lend than before and they compete with one another in offering loans to the cultivators at lower rates of interest. Owing to an increase in

prices land has considerably risen in value throughout India and now forms ample security for a much larger loan in comparison with what it would have secured 25 years ago; and this increased credit " the ryot, both great and small, is possibly far too prone to utilise for foolish and improvident purposes." The temptation is too strong for him to resist borrowing, the dangers of which are unrealised, as he foolishly believes that he can repay the debt at the next harvest. In a good year, although he has means to pay off a large portion of his debt, he does not repay what he conveniently can, and indulges in some other extravagance; while in a bad year, he has not the wherewithal to live, much less to clear his debt, and it becomes hopeless for him to free himself from this burden.

383. This, however, applies specially to the case of cultivators with small holdings. Living, as they do, near the margin of subsistence, their produce is just sufficient to meet their wants when the season is favourable, while in bad years they have no alternative but to fall into the clutches of the money-lender. The case of tenants with large holdings is, however, different. Their produce is sufficient for their wants in all years, good or bad, and a bad year means to them only a diminution of their surplus left over to sell.

384. The Indian law of inheritance coupled with the gradual disintegration of the joint family system is yet another deterrent to the growing prosperity of India, more especially of the agricultural classes. It is this which is responsible for a continual sub-division of family property and the creation of continually large numbers of agriculturists with small holdings, whose position is always so precarious and who are so perpetually in debt. Bad years in the last two decades have denuded most of them of all their reserves and have even compelled them to run into debt, and they have not been fortunate enough to have such a succession of good years as to enable them to repay their debt and recover their position completely.

385. A Settlement Officer in Madras writes :—' There can be no doubt, however, that owing to the stress of hard seasons the debts thus contracted have become in many cases accumulative and many of the smaller *pattadars* are heavily involved, while others have disappeared." The statistics in the report on the famine of 1896-97 show that, in Madras, only small *pattadars* holding a few acres sought relief.

386. The tenants with large holdings have, on the other hand, reaped much benefit from the rise of prices and their material condition has been much improved; and many of them have enough to lend to the other smaller cultivators. It is interesting to note that a large portion of the debt of the agriculturists is now borrowed from their own class. The Registration Department figures for the Madras Presidency, reproduced below, show that in the period 1905—1909 about 83 per cent. of the land sold by the agriculturists was purchased by the same class and 72 per cent. of the loans on mortgage was given by them.

Lands acquired by the several classes of the Population in the Madras Presidency.

YEARS.	TOTAL EXTENT SOLD.	TOTAL EXTENT PURCHASED BY AGRICULTURISTS.		TOTAL EXTENT PURCHASED BY TRADERS.		TOTAL EXTENT PURCHASED BY OTHERS.	
	Acres.	Acres.	Percentage.	Acres.	Percentage.	Acres.	Percentage.
1905 . .	744,265	596,138	80	85,128	11	62,999	9
1906 . .	802,199	660,366	82	74,700	9	67,133	9
1907 . .	865,365	718,174	83	74,906	9	72,285	8
1908 . .	858,737	712,771	83	71,603	8	74,363	9
1909 . .	907,637	750,160	83	73,982	8	83,495	9

Details of the loans made by the several classes and the proportion in each case to the total amount borrowed.

YEARS.	TOTAL AMOUNT LENT ON MORTGAGE (WITH OR WITHOUT POSSESSION) BY ALL CLASSES.	TOTAL AMOUNT LENT BY AGRICULTURISTS.		TOTAL AMOUNT LENT BY TRADERS.		TOTAL AMOUNT LENT BY OTHERS.	
	Lakhs.	Lakhs.	Percentage.	Lakhs.	Percentage.	Lakhs.	Percentage.
1905 . .	559	399	71	98	18	62	11
1906 . .	612	431	70	108	18	72	12
1907 . .	679	490	72	116	17	73	11
1908 . .	758	557	73	120	16	81	11
1909 . .	788	571	72	139	18	78	10

387. The above remark would apply equally well to all parts of India, and a class of very well-to-do agriculturists has been formed in whose hands lands are thus being accumulated on transfer from small holders.

388. It has already been explained that a much higher standard of living has permeated all classes of society in India and agriculturists are no exception. A collector in the Bombay Presidency writes, " . . . the present men as they live less laborious lives, so they have more expensive tastes than their forbears, and to gratify them will resort to the *sávkár*, if there is no money in the house. Formerly the ordinary cultivators, to a man, wore country cloth; now they must have it of finer texture from Manchester. Cheap local rice, *dal* and *gur* were enough for the daily food; now vegetables, imported rice and refined sugar are in demand. A more luxurious generation seeks after *pán-supari*, chiroots, hired servants, sweetmeats and American watches, and will borrow money to get them." This remark is true of all provinces—may be, in a more or less degree—but that there has been a considerable improvement in the standard of living, there is no doubt. The ordinary cultivator is now a fierce competitor with the middle class man in the village for such articles as fish, fruits, etc.,—articles which he purchased before, only on festive occasions. The scale of expenses on marriage and other ceremonies has also gone up—if the cultivator was extravagant before on such occasions, he has become more so now; and as a Settlement Officer in Madras wrote, " the main causes of the change (increase in indebtedness) are undoubtedly the rapid disappearance of the joint family system and litigation. . . . The second is closely correlated to the first and in many cases is a consequence of the disputes, to which the subject of partition gives rise. Surplus money can find few outlets where banks are unknown or mistrusted, so that it is not surprising that the surplus cash of a good season should frequently find its way into the hands of those who live by the profession of the law." Litigation has been and is the bane of the country and it is difficult to imagine how many families, rich or poor, have been ruined by it.

389. The conclusion from the above facts and from evidence collected during our tours in various parts of India is that agricultural indebtedness has increased in the case of cultivators with small holdings, while another section—the larger tenants—has improved, and instead of borrowing money

they often lend it to their fellows. Taking the class as a whole—big and small, rich and poor, together—the indebtedness of the agriculturists does not appear to have increased.

390. In some tracts the cultivators are much better off than before particularly in the jute area of Eastern Bengal, cotton area of Berar, Central Provinces and Khandesh and the wheat area of the United Provinces and the Punjab. The cultivators in these areas have greatly benefited by the rise in prices of jute, cotton and wheat, and their material condition is much better than what it was before. Their improved dwelling houses, finer clothes and jewellery for their women bear eloquent testimony to this. While in some other parts—the famine-ridden tracts of Bundelkhand and Deccan for example—poverty, associated with an unproductive soil, precarious climate and irregularity of income, both as to period and value, has been the lot of the average cultivator, generation after generation.

391. The statement below shows (1) the number of savings banks accounts kept by agriculturists in the several Postal circles, year by year, from 1890-91 to 1911-12; (2) the percentage of these accounts to their average number during the years 1890-91 to 1894-95, and (3) the percentages of these accounts to the total number of savings banks accounts kept in the respective circles. The statement shows a progressive growth of the number of such accounts, but this is not perhaps a reliable index of the growth of the savings of agriculturists. It may only indicate the fact that they are realising more and more the advantages of savings banks and are now putting their small savings there instead of keeping them in cash. It is interesting, however, to note that, compared with other areas, the growth has been much larger in Northern and Eastern Bengal, Punjab, Burma and United Provinces, where, as already stated above, one would expect to find an improvement in the condition of the agriculturists.

Number of Postal Savings Accounts of Agricultural depositors.

Years.	Central Postal circle.	Eastern Bengal and Assam Postal circle.	United Provinces Postal circle.	Bengal Postal circle.	Burma Postal circle.	Madras Postal circle.	Bombay Postal circle.	Punjab Postal circle.	TOTAL.
1890-91	132	241	457	1,948	26	1,739	775	165	5,483
1891-92 . . .	142	247	673	2,772	23	1,761	760	279	6,657
1892-93	161	214	552	3,067	37	1,945	794	187	6,957
1893-94	185	205	592	3,042	51	2,014	881	234	7,234
1894-95	195	234	585	2,616	63	2,135	905	204	6,937
1895-96	213	295	696	3,300	61	2,300	974	256	8,095
1896-97	196	278	595	3,194	79	2,347	975	327	7,991
1897-98	244	420	661	3,923	112	2,421	951	384	9,116
1898-99	229	381	1,106	4,158	58	2,476	1,045	564	10,017
1899-00	227	438	1,026	3,774	65	2,576	1,159	565	9,830
1900-01 . . .	265	420	1,056	4,108	95	2,821	1,243	706	10,714
1901-02	397	521	1,217	4,213	160	3,451	1,667	758	12,387
1902-03	321	501	2,659	4,535	145	4,405	1,536	963	15,065
1903-04	316	841	2,799	4,714	186	4,610	1,823	1,112	16,431
1904-05	435	891	3,075	5,075	191	4,849	2,116	1,382	18,014
1905-06	505	1,668	3,302	5,018	224	5,049	2,210	1,567	19,573
1906-07	582	1,918	3,645	5,543	281	6,681	3,385	1,784	23,822
1907-08	599	2,086	4,112	5,963	301	8,016	4,297	2,012	27,386
1908-09	574	2,318	4,293	6,378	363	8,757	4,464	2,115	29,262
1909-10	597	2,556	4,633	7,018	404	8,606	4,616	2,317	30,747
1910-11	649	2,868	4,909	7,215	518	9,134	1,596	2,506	32,395
1911-12 . .	551	3,230	5,154	7,722	580	9,735	4,728	2,662	34,362

Index numbers of the number of Postal Savings Banks Accounts of Agricultural depositors.

Years.	Central Postal circle.	Eastern Bengal and Assam Postal circle.	United Provinces Postal circle.	Bengal Postal circle.	Burma Postal circle.	Madras Postal circle.	Bombay Postal circle.	Punjab Postal circle.	TOTAL.
1890-91	81	105	80	73	65	90	94	77	82
1891-92	87	108	118	103	57	92	92	131	100
1892-93	99	93	97	114	92	101	97	88	105
1893-94	113	90	103	113	128	106	107	109	109
1894-95	120	104	102	97	158	111	110	95	104
1895-96	131	129	122	123	151	119	118	120	122
1896-97	120	122	104	119	198	122	118	153	120
1897-98	150	184	116	146	280	126	116	180	137
1898-99	140	167	193	155	145	129	127	264	151
1899-00	139	192	179	140	163	134	141	264	148
1900-01	163	184	185	153	238	147	151	330	161
1901-02	244	228	213	157	400	179	203	355	186
1902-03	197	220	465	169	363	229	187	450	226
1903-04	194	369	490	175	465	240	222	534	247
1904-05	267	390	538	189	478	252	257	646	271
1905-06	310	731	577	187	560	262	272	733	294
1906-07	357	840	637	206	710	347	411	834	358
1907-08	367	914	719	222	753	416	522	941	412
1908-09	352	1,016	751	237	908	455	542	989	440
1909-10	366	1,120	810	261	1,010	447	561	1,084	462
1910-11	398	1,256	859	268	1,295	475	558	1,172	487
1911-12	338	1,415	901	287	1,450	506	574	1,245	516

Percentages of the numbers of Postal Savings Banks Accounts of Agricultural depositors.

Years.	Central Postal circle.	Eastern Bengal and Assam Postal circle.	United Provinces Postal circle.	Bengal Postal circle.	Burma Postal circle.	Madras Postal circle.	Bombay Postal circle.	Punjab Postal circle.	Total India.
1890-91	·59	·92	1·01	1·82	·18	2·69	·76	·60	1·34
1891-92	·57	·85	1·33	2·30	·13	2·40	·66	·87	1·44
1892-93	·57	·66	·97	2·27	·18	2·38	·62	·52	1·34
1893-94	·60	·57	·95	2·10	·18	2·27	·62	·58	1·26
1894-95	·62	·61	·87	1·69	·21	2·20	·62	·45	1·13
1895-96	·64	·69	·97	1·97	·20	2·21	·64	·51	1·24
1896-97	·56	·61	·78	1·73	·24	2·14	·56	·59	1·12
1897-98	·69	·88	·85	2·03	·33	2·17	·55	·65	1·25
1898-99	·63	·76	1·33	2·09	·17	2·17	·60	·88	1·33
1899-00	·60	·84	1·16	1·82	·18	2·17	·66	·81	1·25
1900-01	·69	·76	1·14	1·92	·26	2·24	·70	·94	1·31
1901-02	·97	·90	1·21	1·86	·41	2·60	·90	·92	1·43
1902-03	·74	·82	2·45	1·92	·35	3·08	·77	1·06	1·63
1903-04	·67	1·37	2·38	1·81	·44	3·01	·85	1·14	1·66
1904-05	·85	1·31	2·42	1·91	·43	3·00	·92	1·26	1·70
1905-06	·95	1·38	2·46	2·17	·48	2·91	·92	1·37	1·75
1906-07	1·02	1·51	2·58	2·23	·57	3·60	1·32	1·45	2·00
1907-08	·98	1·56	2·77	2·25	·57	4·00	1·62	1·47	2·17
1908-09	·89	1·65	2·80	2·28	·63	4·21	1·64	1·47	2·22
1909-10	·87	1·72	2·86	2·37	·65	4·27	1·62	1·50	2·23
1910-11	·90	1·85	2·89	2·34	·80	4·44	1·56	1·55	2·26
1911-12	·73	1·91	2·88	2·38	·86	4·60	1·53	1·56	2·29

Rate of interest.

392. The rate of interest on agricultural loans varies widely in different parts of India and even in the same place, according to the credibility of the cultivator or the security offered; thus, in Bengal, it is said to be 36 per cent., in Eastern Bengal 37½ to 75 per cent., in the Central Provinces anything from 6 to 100 per cent. and in Madras 6 to 36 per cent. It is, therefore, difficult to collect statistics to show whether the rate has increased or decreased. But the general belief is that the rate of interest has been lowered except in some parts where restrictions have been placed by law on alienation of land, thus reducing the value of the security. It seems from the evidence collected that this lowering of the rate has been due to increased wealth and a consequent increase in the number of money-lenders who compete with each other in reducing the rate. Co-operative Credit Societies have also doubtless contributed to these results in places where they have been constituted.

393. The rate of interest in India has frequently been said to be exorbitant. It may be mentioned, however, that the rate of interest for agricultural loans in Europe and America also is much higher than the ordinary business rate. The agricultural borrower in France is said to pay 10 per cent., while in some of the Eastern States of America 8 per cent. is charged on mortgage loans. In Italy the rate of interest varies from 30 to 100 per cent., and 5 per cent. per month is common. It is not, therefore, in India alone but in other countries also that a higher rate of interest is charged for agricultural loans than on those required for business purposes.

Agricultural indebtedness in India not overwhelming in comparison with other countries.

394. The amount of the agricultural debt in India does not also appear, in comparison with other countries, to be overwhelming. In France the mortgage debt has been estimated at £660 millions, in Prussia £500 millions and in Italy £328 millions, giving an average per head of population of £17, £12·5 and £9·5, respectively. Such an estimate has not up till now been made for India, but Sir Frederick Nicholson's estimate in 1895 for the Madras Presidency gave a debt of Rs. 13 per head. And remembering that indebtedness has not increased on the average, the present average debt per head is probably about the same. This average rate, although very rough, can be generally applied to all India, and, compared with the similarly rough estimates for the countries mentioned above, the debt for India appears not to be higher than in other countries, even allowing for the very small average income per head in this country.

395. In every country of the world agriculturists are indebted. "Since credit is absolutely essential to agriculture in every country, more specially in countries of small proprietors where there are no landlords to carry out improvements or tenant-farmers with proper working capital, the individual money-lender is, in the absence of village banks, a necessity, however expensive." In India the Mahajan helps the ryot to tide over a bad year, pays his rents and cesses when he has no money and furnishes him with seed grain at sowing time and with grain for consumption during the months when the land does not yield its produce. The Indian ryot is without capital and cannot exist without borrowing at one time or another. The village money-lender is, therefore, in present circumstances an absolute necessity.

Methods taken by Government in dealing with the question of agricultural indebtedness.

396. The Government of India have, however, been taking steps towards an amelioration of the condition of the agriculturists as regards their indebtedness. The different methods adopted by Government in dealing with the question of agricultural indebtedness have usually been classified under four heads :—

1. Measures taken to avoid unnecessary debts.
2. Measures for the improvement of the civil law in connection with agricultural debt.

3. Measures for restricting the alienation of land.
4. Measures undertaken with the object of providing or maintaining credit, or reducing debt.

The avoidance of unnecessary debts.

397. With regard to the first measure, Government is making every effort to popularise primary education, and more will probably be done in future to enable the agriculturist to take a more careful and businesslike view of indebtedness. At the same time one must not expect that this will be the panacea. In educated Prussia, for example, there is a very large amount of agricultural indebtedness, and much of the debt is now incurred for land improvements. Government has also succeeded in assisting the improvement of agricultural departments and agricultural colleges. The suspension or remission of the fixed or fluctuating assessment in years of scarcity have also been partial remedies. In the famine of 1907-08, it may be noted, more than 2 crores of revenue was suspended and more than 1 crore remitted in the three provinces where the famine was chiefly located. It has been calculated that in the Punjab and the United Provinces the average annual amount suspended between 1881—86 and 1905—10 rose from Rs. 4·08 lakhs to Rs. 32·86 lakhs, and the annual average amount remitted from Rs. 1·98 lakhs to Rs. 27·70 lakhs.

The improvements in the Civil Law in regard to agricultural debt.

398. With regard to the second class of remedies, *viz.*, the Civil Law, Government has attempted to simplify and to improve the law and procedure for the benefit of the cultivator. The principal examples of this are the Amendments of the Deccan Act in 1895, 1903 and 1907 which are found necessary owing to serious agrarian disturbances. The modification in 1907 of the Deccan Act gave the courts power to go behind the bond and to determine the nature of the transaction independently of the provisions of the law regarding documentary evidence. The opinions expressed by witnesses in the Deccan and other parts of Bombay were that the money-lenders were now more cautious in advancing loans except on the security of land, while the cultivators themselves hesitated to borrow where security of land was required.

Restrictions on the alienation of land.

399. Restrictive legislation bearing on the transfer of land has been applied to the Punjab, the United Provinces and Bombay. The Punjab Land Alienation Act was passed by the Legislative Council of the Government of India in 1900, and was amended by the local Legislative Council in 1907. Under this Act, the sale of land of a member of an agricultural tribe, in execution of a decree, is now forbidden, as also what are known as mortgages by way of conditional sale, and, generally speaking, alienations by members of an agricultural tribe to outsiders are limited to certain specific forms of mortgage and lease under which the lien of the owner on the land is ultimately retained. The Act has, according to experienced officers in the Punjab, been a great success. In 1903, an Alienation Act for Bundelkhand was passed by the Legislative Council of the United Provinces. According to some, the Act affected credit in the areas concerned, but the District Officers believe it to have been successful on the whole. In August, 1901, an Act restricting the transfer of land was passed by the Bombay legislature.

The supply of money and credit.

400. As regards the supply of money and credit, Government have, from time to time, attempted to supply the agriculturist the credit which he most urgently requires, by granting loans or by making arrangements for the liquidation or reduction of his existing debts, or by both these methods. Special means has been taken by assisting the development of co-operative credit. A certain amount of the capital required for making wells and improving drainage, for seed, cattle, etc., has been supplied by Government from time to time. The Acts

dealing with the loans by Government were passed in 1871 and incorporated in the Acts passed in 1883 and 1884. These Acts of 1871, 1883 and 1884 have since been amended. Where money is borrowed for agricultural improvements, special concession is allowed by the term of repayment being extended beyond the ordinary limit of 20 years and the repayment itself being deferred till the improvements begin to yield a profit. The amount of security now demanded has also been lessened, the remission of payments, when the work fails, and free grants of money in special tracts in aid of loans given for protective irrigation have also been provided for. Measures have also been taken, in the Central Provinces, for conciliation between debtors and creditors, and this policy has been most successful there. The proposal was inaugurated in 1898 at the instance of Sir Bamfylde Fuller. In that year, two tahsils of the Saugor District were in a very distressed state, and Government allotted 1½ lakhs of rupees for *takavi* advances. The Chief Commissioner, however, proposed that it should be an essential condition to obtaining the loans that the creditors, both *malguzars* and *banias*, should be called upon to realise from their debtors the whole or a portion of their debts. The recommendation was accepted and debts amounting to over 5½ lakhs of rupees were remitted. Three leading bankers and *malguzars* of the district voluntarily remitted large sums of money owing to them. The total remission amounted to nearly 10 lakhs of rupees.

401. In 1904, the Co-operative Credit Act was passed by which Co-operative Credit Institutions in India were established. The Co-operative Credit movement, although it has only touched the fringe of agricultural indebtedness in India, has made a most successful start. If it progresses, as it has done, it will not only secure money on easy terms to the agriculturist but will encourage thrift. The following two tables show the growth of the Co-operative Credit business. There is every hope that in years to come, this remedy for agricultural debt will prove to be the most efficacious :—

CO-OPERATIVE CREDIT SOCIETIES.

Number of Societies at work in British India and their Capital (in Rupees) at the end of each year, since 1905-06.

—	Societies at work.	Capital.	INCREASE (+) OR DECREASE (—) IN CAPITAL.	
			Amount.	Percentage.
1905-06	283	4,73,219	..	..
1906-07*.	846	21,31,258	+16,58,039	+350·38
1907-08	1,357	44,07,024	+22,75,766	+106·78
1908-09	1,963	79,33,218	+35,19,132	+79·72
1909-10	3,428	1,21,81,027	+42,47,809	+53·54
1910-11	5,321	1,99,04,502	+77,23,475	+63·41

* Fifteen months ending with the 30th June 1907.

Number of Societies and their Capital in each Province at the end of each year since 1905-06.

Province.	NUMBER OF SOCIETIES. 1905-06	1906-07.*	1907-08.	1908-09.	1909-10.	1910-11.
Bengal . . .	57	178	350	395	511	715
Eastern Bengal and Assam.	21	60	135	231	366	543
United Provinces .	72	170	187	369	789	1,258
Central Provinces and Berar.	9	70	80	100	152	300
Punjab . . .	29	177	258	316	706	1,093
Bombay . . .	31	69	145	175	209	256
Madras . . .	27	63	101	180	377	596
Coorg . . .	6	11	12	15	18	22
Ajmer . . .	8	8	8	8	25	59
Burma . . .	23	40	81	174	275	479
TOTAL BRITISH INDIA	**283**	**846**	**1,357**	**1,963**	**3,428**	**5,321**

CAPITAL IN RUPEES.

Bengal . .	30,584	1,00,037	2,17,198	3,59,753	6,90,754	10,67,727
Eastern Bengal and Assam.	18,912	73,905	2,69,486	5,41,484	8,92,095	14,05,582
United Provinces	1,65,209	8,18,619	19,16,421	30,87,647	34,77,363	46,89,897
Central Provinces and Berar.	24,610	65,889	1,57,660	2,07,128	3,04,875	5,21,019
Punjab . .	37,018	2,63,975	5,12,921	8,32,125	18,84,241	37,40,964
Bombay . .	27,013	2,97,070	3,63,026	5,74,356	8,17,206	13,26,874
Madras . .	1,00,403	3,66,132	7,73,915	18,23,433	33,28,558	49,34,779
Coorg . .	..	19,098	26,224	32,131	49,905	62,411
Ajmer . .	888	362	406	674	15,982	1,11,740
Burma . .	68,582	1,26,171	1,69,767	4,74,487	7,20,048	20,43,509
TOTAL BRITISH INDIA.	**4,73,219**	**21,31,258**	**44,07,024***	**79,33,218**	**1,21,81,027**	**1,99,04,502**

* Fifteen months ending with the 30th June 1907.

Relation between agricultural indebtedness and high prices.

402. Up till now we have been dealing with the question of agricultural indebtedness by itself. The next question to answer is—Are the present high prices responsible for this indebtedness? The reply is in the negative. The Indian ryot was almost as extravagant and thriftless before the era of high prices as he is now, and the high prices could not have materially added to his improvidence and extravagance. Sub-division of land and consequent creation of small holdings, which have diminished his resources, and successive bad seasons are rather the causes that have led to high prices, and are not their effects. These causes, therefore, which lead to agricultural indebtedness are independent of the rise in prices. The improved standard of living may, in the case of the agriculturists, be considered to be an effect of the rise of prices, and, to the extent to which agricultural indebtedness is due to this cause, high prices may be held to be indirectly responsible.

403. But on the other hand, it is the rise in the prices of their produce that has saved the agriculturists from faring worse. Wherever we had been in our tours, those who are solely dependent on agriculture, were unanimous in saying that they did not want low prices. If prices went down, they said, they would be unable to pay their rents or meet other obligations and would be ruined generally. The

rise in prices of food grains has been more than in that of other articles which the ordinary ryot generally purchases. With a low level of prices he would lose more on the grains he sells than he would gain on the articles he purchases. On the whole, therefore, the rise of prices has not led to increased indebtedness, but has, on the other hand, prevented an increase, and in good years it gives the cultivator a better opportunity of paying off his cash obligations.

Effect on labourers. Real and nominal wages.

404. Next to agriculturists, the largest section of the population of India consist of labourers, skilled and unskilled, who find employment in rural and urban areas and in cities and factories. In estimating the effects of the rise in prices on the various sections of wage-earners, it is necessary to examine how far wages have increased for the various classes of labour and what the increase in "real" wages, or in "nominal" wages has been, in comparison with the increase in retail prices, especially of food grains which predominate in a labourer's family budget. By "nominal" wages is meant the actual sum of money which a man earns for a period of time. The expression is often known as money wages. "Real" wages mean the amount of commodities which the labourer can buy with his money wages. Supposing wages were Rs. 15 in one place and Rs. 20 in another, the real wages in the first case would be the commodities which Rs. 15 would buy at the price prevailing at that time, and in the other the commodities which Rs. 20 would buy. Economists, especially M. de Foville and M. Guyot, have always emphasised the necessity of using *real* wages in making comparisons between the economic conditions of different districts, trades, or periods. This is especially true when a great interval of time is taken. Thorold Rogers in his "Six Centuries of Work and Wages" values a hind's annual nominal earnings in the thirteenth century at 35*s*. 8*d*.; those of an agricultural labourer to-day may be taken at £40. It would be absurd to suppose that this ratio of 1 to 22 in any way measures their relative well-being.

Wages in selected industries.

405. Wage-statistics have been collected for different kinds of labour such as village artisans and agricultural labourers, domestic servants and skilled and unskilled labourers and for selected industries, such as the cotton industry, the jute industry, and the mining industry; and the rates prevailing in large cities have been differentiated from those in smaller urban and rural areas. Attempts have been made to ascertain accurately standard rates of wages in each homogeneous tract and in each industry and to provide materials for the observation of permanent changes in these standard rates, neglecting short period fluctuations. Wage-statistics of the following industries have been compiled: *viz.*, jute, cotton, wool, leather, brewing, tea, sugar, paper, printing and mining; wages paid on railways and workshops for the manufacture of locks have also been included in the total general average of industries.

406. The following table gives the index numbers of *nominal* and *real* wages in all India for stated periods :—

Comparative Statement showing Nominal and Real Wages.

—	NOMINAL WAGES.					REAL WAGES.				
	1895.	1900.	1905.	1910.	1912.	1895 to 1899.	1900 to 1904.	1905 to 1909.	1910.	1912.
RURAL.										
Agricultural labourers	105	125	147	170	189	103	120	123	134	138
Village Artisans	107	127	149	173	191	105	122	124	135	138
AVERAGE	**106**	**126**	**148**	**171**	**190**	**104**	**121**	**123**	**135**	**138**

Comparative Statement showing Nominal and Real Wages—contd.

	NOMINAL WAGES.					REAL WAGES				
	1895.	1900.	1905.	1910.	1912.	1895 to 1899.	1900 to 1904.	1905 to 1909.	1910.	1912.
URBAN.										
Skilled labourers	106	122	143	167	183	104	119	120	132	134
Unskilled labourers	108	127	151	177	198	106	122	126	135	145
Domestic servants	104	117	131	147	159	100	111	108	117	116
AVERAGE	**106**	**123**	**142**	**165**	**181**	**103**	**118**	**119**	**131**	**133**
CITIES.										
Skilled labourers	105	122	142	167	177	105	118	120	131	130
Unskilled labourers	104	123	140	167	179	104	117	120	131	132
Domestic servants	102	118	134	149	159	102	113	111	118	116
AVERAGE	**104**	**122**	**139**	**163**	**174**	**105**	**117**	**118**	**129**	**128**
INDUSTRIES.										
Jute	107	122	131	139	142	105	113	105	109	106
Cotton	102	112	121	134	141	101	106	100	106	106
Wool	106	111	131	141	147	97	111	101	113	109
Leather	111	120	134	137	143	102	117	99	110	106
Brewing	107	106	112	121	131	95	100	91	98	94
Tea	106	103	106	117	120	101	96	90	98	95
Sugar	105	116	122	120	129	103	109	100	102	97
Paper	103	111	116	139	139	96	192	94	109	102
Lock workshops	114	129	151	192	102	106	128	120	151	142
Printing Press	102	111	125	146	146	92	105	98	117	108
Mining	106	133	158	186	189	105	129	128	148	137
AVERAGE	**105**	**115**	**126**	**141**	**146**	**100**	**107**	**103**	**111**	**107**
Railways	102	108	117	136	138	97	99	97	108	101
Canals	100	115	121	138	143	98	102	91	108	102
AVERAGE OF INDUSTRIES	**104**	**113**	**123**	**139**	**143**	**99**	**106**	**100**	**110**	**106**
GENERAL AVERAGE	**105**	**119**	**135**	**155**	**166**	**102**	**113**	**112**	**123**	**121**

Rise in wages

407. A study of these figures clearly shows that the wages of every class of wage-earners have risen in rural and urban areas and in cities much more rapidly than retail prices and that the rise has been greatest in rural areas and that, among the different classes of wage-earners, the unskilled labourer in urban areas has obtained the largest increase. The rise has been steady throughout the period. In rural areas, wages of both agricultural labourers and village artisans have risen enormously as measured by their purchasing power of commodities. They are now 38 per cent. above the level of the standard period. In urban areas, the rise, though great, has not been as high as in rural areas. In cities, the rise has been still lower. Here the present level of wages as measured by their purchasing power is only 28 per cent. in excess of that of the basic period. In addition to the money wages, both artisans and agricultural labourers in rural areas receive a part of their wages in kind and the increased value of this, together with their increase in cash wages, has resulted in benefiting them immensely. It should also be pointed out that owing to a great increase in the demand for labour in rural areas, there has been a considerable reduction in the period of unemployment for such labourers. Thus, although their cash wages have not increased as much as

those of unskilled labourers in urban areas, they have benefited as much as, if not more than, the latter. Domestic servants in urban areas and cities have not, however, succeeded in benefiting from the rise of their wages to the same extent as the other classes of the labourers.

408. The rise in the wages of industrial labour has not, also, been as large as in the case of the labourers just mentioned. Nominal wages have increased in every case, but the rise has not in all cases been as great as in prices. In some cases, money wages, notwithstanding an increase, are not now sufficient to buy the same quantity of commodities as before. The coolies in Tea gardens * appear to be in the worst position, as their *real* wages have fallen 5 per cent. below those in the basic period. The increase in wages in brewing and sugar industries also do not appear to have been commensurate with the rise of prices, and the *real* wages in these two industries appear to be 6 or 3 per cent. lower than in the basic period. In the other industries, however, wages have risen more quickly than prices and the purchasing power of the present level of wages is higher than that of the level of the basic period. The increase in most cases has, however, not been as great as in the case of the other labourers mentioned above. Of all the different kinds of industrial labour, the employés in the mining industries have done best and the increase in their real *wages* is as great, if not greater, than that obtained by any other class of labour. Employés in the Lock Workshop at Aligarh have done even better. The increase obtained by the employés in jute, cotton, wool and leather factories is also satisfactory, though not quite as good as that obtained in the mining industry. On the whole, labourers, as a class, have done very well and the statistics show clearly that this is the labourers' day.

Effect on persons classified under Industry and Transport.

409. After Landlords, Agriculturists and Labourers come those who have been classified in the census under "Industry and Transport." The wage-earners included in these classes and employed in mines, mills, factories and other enterprises and on railways and canals have already been dealt with, and it has been shown that, except in the case of those employed in tea gardens, breweries and sugar factories, there has been an increase in wages in the other industries more than sufficient to raise the purchasing power of the employés considerably above that of the basic period. It has also been shown that persons engaged in handicrafts, *e.g.*, weavers, rice-huskers, etc., have suffered seriously in consequence of the competition of their products with imported articles and manufactures of mills and factories in India worked on European methods. The other persons included in the group "Industry" are the capitalists, who have started these mills, factories and other industries on modern lines. The number of these is, however, very small. The rise of prices has undoubtedly benefited them, inasmuch as the price of articles produced by them has, in most cases, far exceeded the cost of production. The only important exceptions are tea and coal. Capitalists in the tea industry suffered for a time, but the industry is now in as prosperous a condition as before. There was a serious depression in the coal industry also for a time, but prospects are improving.

Effect on persons engaged in trade.

410. The next class is that classified under Trade. The census of 1911 shows a large decrease in the number engaged in trade. The extension of railways and the consequent establishment of agencies by the large exporting firms at most of the railway stations has driven, out of the market, a very large number of dealers in grain and other agricultural produce, who used to carry on business as the connecting link between the sellers of surplus produce in the village and the larger dealers in trading centres. The establishment of agencies for transaction of various kinds of transfers of property and of shops with fixed prices, which encourage direct dealing, has also reduced the necessity of middlemen, and this has resulted in a decrease in the number of brokers and agents and

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* It should however be noted that Tea garden coolies got some special concessions in addition to wages, *e.g.*, they get rice at a fixed rate, generally lower than the market rate.

in their earnings. Competition and facility of communication have also reduced profits in trade. On the whole, except the large exporting and importing firms whose volume of business and earnings have expanded immensely, smaller traders are not as well off as before.

Effect on persons with fixed income.

411. The only classes of population that remain to be dealt with are the persons employed on fixed salaries, such as those classified under "Public Force" and "Public Administration," and men engaged in professions and the liberal arts. It is needless to say that these are the classes that have suffered most in consequence of the rise of prices.

Condition of the poorer classes as evidenced by famines.

The Famine Resolution of the United Provinces (1908).

412. It is important in discussing the effects of the rise of prices on the poorer classes of the community, to enquire into their condition in times of famine or scarcity. The poorer classes of the community are then affected by two forces—the strain of a falling labour market coupled with the strain of high prices of foodgrains. If the resisting power shown by these classes in two succeeding famines are compared, one may draw valuable conclusions as to the extent to which their material condition has, if at all, improved. The Famine Resolution of the United Provinces (1907-08) shows that by the drought of 1907, nine months' food supply for the whole province representing approximately 42 crores of rupees, and non-food crops to the value of 15 crores of rupees were lost. This drought, it was said, was as intense and extensive as the drought of 1896. The previous famine was to a great extent a labourers' famine; in the present year the labouring population did not resort in large numbers to relief works except in the very severely affected districts. . . . . The difference between the two years is not entirely explainable by this or by the greater severity of the earlier famine. It points to the fact, which seems beyond dispute, that the position of the labouring classes has improved in the last decade, as is also clearly illustrated by the later section of this resolution on the subject of wages of labour. As regards the cultivating classes, even in the previous famine they were seldom compelled to resort to relief works: the pressure of the famine upon these classes was chiefly manifested by the greater extent to which, they themselves and their families were compelled to perform field work, for which they would ordinarily have employed hired labour. Within the last ten years their position has been further strengthened by the constantly increasing facilities of transport and the high prices obtainable for agricultural produce. An interesting comment on this point is afforded by a missionary in Ghazipur, who writes from personal experience that in 1877 people were dying there of starvation with common rice selling at 9¼ seers (19 lbs.), while this year there were no signs of any serious distress with the same grain selling at 5¼ seers (10¾ lbs.) to the rupee. The Famine Commission of 1880 noticed that the price of ordinary grain in this province in the famine of 1877-78 did not rise above 26 lbs. for the rupee. It is not too much to say that, had prices been the same this year as they were 30 years ago, there would have been no need for relief over the greater part of the area in which famine operations have recently been closed. Although prices have been exceptionally high for several years, the rise has been accompanied by a marked increase in the wages of labour, with the result that the higher price of food does not affect the ordinary labourer so long as he can obtain employment. The amount of employment available has simultaneously increased very considerably by reason of the large expenditure by Government on public works, railways and canals, and the industrial and building operations of the general public. The Director of Land Records and Agriculture has collected information of the wages paid in all rural tracts between October and December 1907, and has compared them with the results of the wage census taken on the same lines in 1906. His conclusions are that the commonest rates of wages paid in the latter period were nowhere below, and were in most cases

above, those recorded at the wage census. Moreover, wages below the commonest rates were paid much less often than in 1906, whereas wages above the prevailing rates were paid on a considerably greater scale than in 1906, and rates hitherto unknown were paid in some localities. Taking the combined results of these conclusions, he estimates that " the average wage of the province has increased in the period by two or possibly three pice for each day's work. A labourer, therefore, who in 1906 spent 1½ annas on food, could in the autumn of 1907 spend two annas on food without curtailing his other expenditure; so that he could get the same amount of food as before if prices were 33⅓ per cent. above the level of prices in 1906 (itself above normal). In the large cities, the rise has been even greater than in the rural tracts. In Agra, for instance, men engaged as ordinary diggers earned, in 1900, 2 annas a day, and women seldom received more than 1 anna 3 pies. At the present time the rate of wages for this kind of work is 4 annas for men, and 2 annas to 2 annas 6 pies for women. Masons and stone cutters who in 1900 earned 3 annas 6 pies daily now receive from 5 to 7 annas. In the same period the pay of such classes as gardeners, water-carriers and sweepers has approximately doubled."

413. In another portion of this report the improvement in the staying power of the people was also instanced. "There was," it was said, " no organised movement of the population from the distressed areas in search of work, no considerable emigration to or immigration from Native States, and, in fact, no noticeable wandering at all. The slight extent to which poor house relief was required and the very small number of casual wanderers relieved by the police, afford a striking confirmation both of the effectiveness with which gratuitous relief was administered and of the small disturbance which the famine caused in the ordinary conditions of the people. The death-rate, though higher than in an ordinary year, was far from excessive, considering the extent and severity of the scarcity which prevailed: the ravages of epidemic disease and the mortality indirectly due to scarcity were minimised to an extent unprecedented in seasons of similar distress, while deaths directly due to starvation were almost unknown."

The Central Provinces Report.

414. The report for the Central Provinces summarises the situation as follows:—

" Every year since 1900 has witnessed an extension of the area occupied for cultivation, and there has been no year at the close of which it could be said that the prosperity of the cultivating classes had not advanced. In no parts of the provinces has progress been more rapid than in the cotton tracts. Cotton thrives best with a light rainfall, and years of short rainfall have induced cultivators to devote increased attention to the crop. Its cultivation has also been greatly stimulated by the high prices obtainable for the fibre, and a large export demand for the seed. The value of land has risen everywhere, and the demand for it is extraordinarily keen in the cotton country. .... The prices for agricultural produce have generally been high since the famines. In 1903-04, owing to the excellent harvests reaped in these provinces and in Northern India, they receded to a point somewhat below those of the normal period preceding the first famine; but subsequently the poorness of the seasons brought them back to a higher level, from which they have shown no tendency to recede, and the good harvests reaped in these provinces during the year immediately preceding the recent scarcity must have brought large sums into the pockets of the cultivating classes. Along with this improvement in their material resources, there has been a distinct advance in the direction ot agricultural improvement. Substantial as has been the improvement in the condition of the landholder, it has been even more remarkable in the case of the labourer, whether he works on the farm or seeks employment in the towns. If cultivators have anything new to complain of, it is the dearth of labour, and the absorption of a large part of their extra profits in the increased rates of wages that they are compelled to pay. Generally unthrifty, the labouring classes are the first to succumb when times are hard for all, and the famines left their numbers seriously depleted. Since then the cry has been for workers rather than for work. Agriculture itself has steadily increased its demands, but has felt itself obliged to compete with the still more rapidly increasing requirements of commerce, and it is no exaggeration to say that the labourer has been in a position to dictate his own terms. ...... There has been a general rise in the standard of wages, and the rise is more than proportionate to the rise in prices which has necessitated it. The labourer has never been in better case."

Bihar Famine of 1896-97.

415. This improvement in the condition of the poorer classes is also evidenced by the reports of other provinces. The Government of Bengal, for example, while reviewing the famine of 1896-97 in Bihar said, 'That under less favourable circumstances than in 1873-74, the numbers requiring Government relief should have been so much less, would appear to establish the fact of general improvement in the general circumstances of the people, but the whole conditions of the relief administration during the two famines were so different that the inference is not so conclusive as it would have been had the same methods been adopted in both cases. Nevertheless, the general experience and observations of the officers engaged in the famine, some of them with knowledge of facts, both then and now, as well as the concurrent opinions of non-officials acquainted with these provinces, do indicate that even in Bihar, during the past quarter of a century, there has been a considerable advance in material prosperity, and that the power of the country as a whole to withstand the calamities of seasons has greatly increased.' The truth of this last sentence is especially applicable to the condition of the people in the same areas during the last 10 or 12 years.

EFFECT IN THE DIFFERENT CIRCLES.

Effect different in different circles.

416. It has already been shown that the extent of the rise of prices has been different in the different circles. Similarly, the variations in wages and the incomes of the agricultural and other classes have also been different. To complete the examination of the effects of the rise in prices on the different sections of the community, it is necessary to examine the situation in the different circles.

Only wage-earners and cultivators need separate examination.

417. Persons on fixed incomes, professional classes and persons who derive their income solely from shares and other securities have been adversely affected throughout the country, to a more or less extent, the greatest hardship being felt in those areas where the rise in prices has been the highest. It is not necessary to examine the condition of these classes in the different areas separately. The only sections of the community which require separate examination are the wage-earning classes—*i.e.*, artisans and labourers—and the agriculturists.

Income of wage-earners increased much faster than prices.

418. As regards the wage-earning classes, the following statements show the nominal and real wages of the different classes of labourers in the several circles for stated periods. It will be seen from these statements that real wages have risen everywhere for all classes of wage-earners, except in the case of domestic servants and those employed in certain industries in a few circles. Even in the case of these classes, nominal wages have risen, but the rise has not been as great as that in the cost of living, as measured by retail prices. It has also been previously explained that the period of unemployment of the labouring classes has decreased and this fact alone, apart from a rise in their wages, would indicate an increased income. The income of wage-earners has, therefore, generally increased much faster than their cost of living, resulting in a substantial improvement in their material condition—specially of agricultural and general labourers and artisans, who form the majority of the wage-earning class.

IN RURAL AREAS.

—	Nominal Wage.					Real Wage.				
	1895.	1900.	1905.	1910.	1912.	1895-99.	1900-04.	1905-09.	1910.	1912.
Assam . . .	101	120	129	139	161	105	115	107	116	128
Bengal Northern and Eastern.	102	124	143	157	177	107	116	113	127	126
„ Southern and Western.	102	122	137	168	184	104	112	115	131	131
Chota Nagpur . .	111	129	153	177	195	101	120	122	146	149
Bihar . . .	102	119	128	149	167	98	112	104	124	135
Agra Provinces East .	105	127	145	161	199	98	121	113	131	154
Bundelkhand . .	101	134	161	184	207	102	123	125	135	147
Agra Provinces North and West including Oudh . . .	108	131	158	185	200	105	132	126	148	148
Punjab East . .	107	132	171	222	250	107	133	147	169	167
„ West . .	103	123	152	191	202	99	125	134	151	144
Sind . . .	108	125	150	164	178	105	121	129	129	124
Gujarat . . .	104	123	154	174	185	106	118	127	135	130
Konkan . . .	108	129	146	156	173	110	125	128	130	137
Deccan . . .	109	122	140	173	191	102	115	123	136	137
Berar . . .	104	117	145	164	190	98	109	120	127	138
Central Provinces .	107	126	144	176	190	106	122	125	142	141
Madras North-East .	110	129	154	165	187	107	127	130	130	136
„ North . .	105	125	145	159	175	108	123	124	128	132
„ South . .	111	128	149	177	196	111	126	132	137	138
„ West . .	103	116	127	139	149	99	109	105	102	110
INDIA .	**106**	**126**	**148**	**171**	**190**	**104**	**121**	**123**	**135**	**138**

IN URBAN AREAS.

—	Nominal Wage.					Real Wage.				
	1895.	1900.	1905.	1910.	1912.	1895-99.	1900-04.	1905-09.	1910.	1912.
Assam . . .	105	122	128	146	160	106	117	111	122	127
Bengal Northern and Eastern.	103	121	136	159	167	104	114	112	128	119
„ Southern and Western.	109	123	143	160	172	107	115	115	125	123
Chota Nagpur . .	109	123	143	165	187	97	114	113	136	143
Bihar . . .	103	116	131	157	174	101	113	109	131	140
Agra Provinces East .	106	133	147	166	191	106	128	118	135	148
Bundelkhand . .	103	133	167	191	219	102	126	129	140	155
Agra Provinces North and West including Oudh.	110	134	159	181	198	105	132	125	147	147
Punjab East . .	110	130	170	221	242	107	133	147	169	167
„ West . .	104	119	135	170	179	99	117	120	137	128
Sind . . .	105	120	140	158	171	103	118	123	124	119
Gujarat . . .	115	117	138	152	167	109	111	113	118	118
Konkan . . .	105	124	139	153	166	105	119	123	128	132
Deccan . . .	106	115	133	158	171	100	109	114	124	123
Berar . . .	102	119	135	157	177	96	106	113	122	128
Central Provinces .	107	121	140	171	183	103	116	120	138	136
Madras North-East .	109	127	153	169	190	108	126	129	130	138
„ North . .	105	116	133	146	153	105	112	116	118	115
„ South . .	103	123	141	165	183	106	120	122	128	129
„ West . .	103	114	125	137	147	98	109	104	101	109
INDIA .	**106**	**123**	**142**	**165**	**181**	**103**	**118**	**119**	**131**	**133**

—	In Important Towns.									
	Nominal Wage.					Real Wage.				
	1895.	1900.	1905.	1910.	1912.	1895-99.	1900-04.	1905-09.	1910.	1912.
Calcutta . . .	101	113	125	137	142	101	107	105	108	107
Bombay . . .	101	124	138	154	162	108	120	132	127	129
Karachi . . .	105	114	126	155	163	97	102	103	112	109
Madras . . .	106	117	128	149	151	109	113	110	109	109
Assam . . .	108	131	138	153	155	114	126	116	128	123
Bengal Northern and Eastern.	101	122	138	155	167	106	114	113	125	119
„ Southern and Western.	109	123	142	157	163	108	116	115	123	116
Bihar . . .	104	120	138	159	199	99	114	113	133	160
Agra Provinces East .	103	119	129	158	175	100	116	108	128	136
Agra Provinces North and West including Oudh.	109	131	159	184	198	104	129	124	147	147
Punjab East . .	110	135	169	227	234	109	133	145	173	156
„ West . .	103	128	168	206	211	105	132	145	166	151
Gujarat . . .	102	112	130	145	167	101	103	107	113	118
Deccan . . .	103	112	122	142	149	.7	102	104	112	107
Berar . . .	104	122	147	168	179	99	118	123	130	130
Central Provinces .	106	127	150	189	202	108	123	131	152	150
Madras North . .	101	129	138	158	168	107	122	123	127	126
„ South . .	104	120	137	166	192	105	118	122	129	135
INDIA .	**104**	**122**	**139**	**163**	**174**	**105**	**117**	**118**	**129**	**128**

—	In Industries.									
	Nominal Wage.					Real Wage.				
	1895.	1900.	1905.	1910.	1912.	1895-99.	1900-04.	1905-09.	1910.	1912.
Calcutta . .	104	118	130	141	149	103	112	106	111	112
Bombay . .	103	107	108	126	125	107	100	102	104	99
Madras . .	99	105	115	125	129	102	102	94	91	93
Assam . . .	106	103	106	117	129	101	96	90	98	95
Bengal Southern and Western.	103	117	123	144	148	100	105	99	113	106
Chota Nagpur .	104	128	157	195	195	97	123	131	161	149
Bihar . . .	103	107	118	137	137	98	102	96	114	110
Agra Provinces East	101	110	123	133	135	94	108	95	108	105
„ „ North and West including Oudh.	106	119	131	148	154	97	114	100	118	114
Punjab East . .	102	107	117	136	143	95	101	95	104	95
„ West . .	102	107	113	136	139	95	102	94	110	99
Sind . . .	100	106	118	128	131	96	99	98	101	91
Gujarat . . .	101	104	105	118	119	96	90	84	91	84
Deccan . . .	100	106	107	114	114	94	94	88	90	82
Central Provinces .	106	114	142	157	158	100	113	116	127	117
Madras North-East .	100	106	106	113	113	93	97	88	87	82
„ North .	104	105	120	123	136	101	97	100	99	102
„ South .	102	110	116	144	148	101	103	103	112	104
INDIA .	**104**	**113**	**123**	**139**	**143**	**99**	**106**	**100**	**110**	**106**

GENERAL AVERAGE OF RURAL, URBAN, IMPORTANT TOWNS AND INDUSTRIES.

	Nominal Wage.					Real Wage.				
	1895.	1900	1905.	1910.	1912.	1895-99.	1900-04.	1905-09.	1910.	1912
Calcutta . .	103	116	128	140	146	102	110	105	110	110
Bombay . .	102	111	116	133	134	107	105	109	110	106
Karachi . .	105	114	126	155	163	97	102	103	112	109
Madras . . .	102	108	120	133	136	104	106	100	97	99
Assam . . .	105	122	129	144	154	108	117	110	120	122
Bengal Northern and Eastern.	102	122	139	157	170	105	115	112	127	121
„ Southern and Western.	106	120	133	153	161	103	114	108	120	115
Chota Nagpur .	108	126	150	176	192	98	118	120	145	147
Bihar . . .	103	115	128	151	168	99	110	106	126	132
Agra Provinces East	104	122	135	154	172	99	118	108	125	134
Bundelkhand . .	102	133	164	188	214	102	125	127	138	152
Agra Provinces North and West including Oudh.	107	122	138	157	164	99	118	106	126	121
Punjab East . .	107	123	151	192	206	103	122	128	147	137
„ West . .	103	117	136	166	173	99	115	117	134	124
Sind . . .	105	117	136	150	161	102	113	117	118	112
Gujarat . . .	104	112	125	140	151	101	102	102	109	106
Konkan . .	106	126	142	155	169	108	121	125	128	134
Deccan . . .	105	115	129	152	163	99	107	110	120	117
Berar . . .	103	119	142	162	181	98	109	118	126	131
Central Provinces .	106	122	144	173	183	104	119	122	140	136
Madras North-East	109	126	149	164	181	106	124	125	126	131
„ North .	108	116	131	142	153	104	110	113	115	115
„ South .	104	117	130	157	169	105	112	114	122	119
„ West .	103	116	127	139	149	99	109	105	102	110
INDIA .	**105**	**119**	**135**	**155**	**166**	**102**	**113**	**112**	**123**	**121**

IMPORTANT TOWNS—DOMESTIC SERVANTS.

	Nominal Wage.					Real Wage.				
	1895.	1900.	1905.	1910	1912.	1895-99.	1900-04.	1905-09.	1910.	1912.
Calcutta . .	100	110	116	124	133	98	103	96	98	100
Bombay . .	102	122	130	138	147	112	118	121	114	117
Karachi . .	102	107	112	135	143	93	94	93	97	96
Madras . . .	100	103	121	150	157	101	102	107	109	114
Assam . . .	100	110	118	126	135	102	105	98	105	107
Bengal Northern and Eastern.	100	116	138	138	150	101	108	105	111	107
„ Southern and Western.	100	115	121	129	132	100	104	95	101	94
Bihar . . .	111	111	133	156	167	104	107	115	130	135
Agra Provinces East	100	117	126	145	160	97	112	103	118	124
Agra Provinces North and West including Oudh.	103	126	147	163	176	100	122	114	130	130
Punjab East .	108	125	139	171	172	101	118	115	131	115
„ West .	100	118	153	171	171	97	125	124	138	122
Gujarat . .	100	114	132	144	176	104	105	108	112	124
Deccan . .	105	114	122	135	138	100	104	102	106	99
Berar . . .	100	100	167	167	167	90	116	131	129	121
Central Provinces .	106	125	144	165	170	108	120	119	133	126
Madras North .	100	175	175	200	219	132	162	161	161	165
„ South .	102	115	138	164	178	103	113	121	127	125
INDIA	**102**	**118**	**134**	**149**	**159**	**102**	**113**	**111**	**118**	**116**

URBAN—DOMESTIC SERVANTS.

	Nominal Wage.					Real Wage.				
	1895.	1900.	1905.	1910.	1912.	1895-99.	1900-04.	1908-09.	1910.	1912.
Assam	102	111	117	130	138	100	106	101	108	110
Bengal Northern and Eastern.	105	118	127	133	138	102	110	99	107	99
,, Southern and Western.	104	118	129	136	143	104	109	102	106	102
Chota Nagpur	106	114	143	164	186	192	108	114	136	142
Bihar	105	111	120	141	158	98	105	101	118	127
Agra Provinces East	106	124	130	144	158	103	117	103	117	122
Bundelkhand	101	116	140	161	180	94	112	108	118	128
Agra Provinces North and West including Oudh.	105	129	142	164	177	104	121	112	131	131
Punjab East	106	119	139	172	180	101	115	115	131	120
,, West	102	109	127	146	158	96	110	106	118	113
Sind	108	122	132	146	159	104	114	114	115	110
Gujarat	100	120	140	140	180	109	107	108	109	127
Konkan	108	115	131	142	157	105	111	114	118	125
Deccan	105	113	121	137	144	98	103	106	108	104
Berar	103	117	124	140	157	93	100	101	109	105
Central Provinces	104	120	135	153	157	101	112	111	123	116
Madras North-East	102	123	145	160	172	103	126	123	123	125
,, South	100	122	140	162	175	102	116	123	126	123
,, West	100	107	111	112	122	96	100	89	82	90
INDIA	**104**	**117**	**131**	**147**	**159**	**100**	**111**	**108**	**117**	**116**

IN INDUSTRIES.

CIRCLES.	Nominal Wage.					Real Wage.				
	1895.	1900.	1905.	1910.	1912.	1895-99.	1900-04.	1905-09.	1910.	1912.
JUTE.										
Calcutta	106	124	132	138	142	106	116	106	109	107
Bengal Southern and Western.	107	120	130	140	146	103	109	103	109	104
INDIA	**107**	**122**	**131**	**139**	**143**	**105**	**113**	**105**	**109**	**106**
COTTON.										
Calcutta	106	126	147	164	197	107	123	121	129	148
Bombay	103	107	108	127	124	108	100	102	105	98
Madras	99	105	115	125	129	102	102	94	91	93
Agra Provinces North and West including Oudh.	102	123	124	140	152	91	114	92	112	113
Gujarat	100	104	104	124	126	94	89	87	96	89
Central Provinces	110	119	165	176	176	104	126	135	142	130
Madras North	104	106	123	126	140	101	98	102	102	105
INDIA	**102**	**112**	**121**	**134**	**141**	**101**	**106**	**100**	**106**	**106**
RAILWAYS.										
Calcutta	100	111	121	135	137	98	101	99	106	103
Bombay	103	105	109	125	126	105	100	103	103	100
Chota Nagpur	100	100	108	162	162	85	88	100	134	124
Bihar	103	107	118	137	137	98	102	96	114	116
Agra Provinces East	101	110	123	133	135	94	108	95	108	105
,, North and West including Oudh.	105	114	136	149	153	96	112	102	119	113
Punjab East.	102	107	117	136	143	95	101	95	104	95
,, West	100	108	114	141	142	94	102	96	114	101
Sind	100	106	118	128	131	96	99	98	101	91
Gujarat	101	104	105	116	117	96	90	83	90	82
Deccan	100	106	107	114	114	94	94	88	90	82
Central Provinces	103	110	123	143	143	97	103	102	115	106
Madras North-East	100	106	106	113	113	93	97	88	87	82
.. North	100	100	106	109	113	97	95	91	88	85
.. South	102	110	116	144	148	101	103	103	112	104
INDIA	**102**	**108**	**117**	**136**	**139**	**97**	**102**	**97**	**108**	**101**
MINING.										
Bengal Southern and Western	104	119	132	166	170	101	112	111	130	121
Chota Nagpur	113	194	271	271	271	123	204	202	224	207
INDIA	**106**	**133**	**158**	**186**	**189**	**105**	**129**	**128**	**148**	**137**

Extent of the improvement in the condition of wage-earners different in different circles.

419. The extent of the rise in real wages has been different in the different circles. The following table shows the index numbers of real wages for 1912 in the different circles for the several classes of labourers, except those employed in industries, arranged in descending order of magnitude. The rise in real wages having generally been progressive throughout the period under investigation, it will be sufficient if the results of the last year are examined.

ARTISANS.						AGRICULTURAL AND GENERAL LABOURERS.					
VILLAGE ARTISANS.		URBAN ARTISANS.		CITY ARTISANS.		AGRICULTURAL LABOURERS IN RURAL AREAS.		GENERAL LABOURERS.			
								In Urban Areas.		In Cities.	
Circles.	Index Number.	Circles.	Index Number.	Circles.	Index Number.	Circles.	Index Number.	Circles.	Index Number.	Circles.	Index Number.
Punjab East	166	Punjab East	170	Punjab East	173	Punjab East	167	Punjab East	185	Punjab West	165
Bundelkhand	156	Bundelkhand	159	Bihar	165	Agra Provinces East.	157	Agra Provinces East.	181	Punjab East	162
Bihar	155	Agra Provinces North and West.	157	Punjab West	159	Chota Nagpur	151	Bundelkhand	176	Bihar	161
Agra Provinces North and West.	153	Agra Provinces East.	144	Central Provinces.	158	Agra Provinces North and West.	147	Bihar	158	Central Provinces.	159
Chota Nagpur	149	Madras North-East.	142	Agra Provinces North and West.	156	Punjab West	145	Agra Provinces North and West	153	Agra Provinces East.	150
Central Provinces	148	Chota Nagpur	140	Assam	137	Bundelkhand	143	Chota Nagpur	150	Agra Provinces North and West.	146
Agra Provinces East.	146	Bihar	139	Madras South	137	Berar	143	Berar	146	Madras South	141
Assam	143	Assam	136	Agra Provinces East.	135	Madras South	140	Madras South	146	Bombay	137
Punjab West	143	Konkan	136	Bombay	129	Deccan	139	Punjab West	142	Bengal North and East.	128
Bengal North and East	138	Central Provinces	136	Berar	128	Central Provinces.	138	Madras North-East	142	Berar	121
Konkan	137	Berar	131	Bengal South and West.	123	Konkan	137	Gujarat	141	Calcutta	120
Madras South	135	Punjab West	129	Bengal North and East.	121	Madras North-East.	137	Central Provinces	139	Madras North	120
Bengal South and West.	133	Bengal South and West.	128	Gujarat	120	Madras North	135	Deccan	135	Bengal South and West.	119
Madras North-East.	132	Bengal North and East.	126	Madras North	119	Bengal South and West.	131	Assam	133	Karachi	113
Deccan	131	Deccan	126	Karachi	112	Gujarat	131	Bengal South and West.	133	Madras	110
Gujarat	129	Madras South	123	Deccan	112	Bihar	127	Sind	130	Assam	110
Sind	127	Sind	119	Madras	108	Assam	125	Konkan	129	Deccan	109
Berar	125	Madras North	117	Calcutta	104	Bengal North and East.	125	Madras West	126	Gujarat	107
Madras North	122	Madras West	110	India	130	Sind	122	Bengal North and East.	120	India	132
Madras West	106	Gujarat	105	....	..	Madras West	113	Madras North	110	....	..
India	138	India	134	...	..	India	138	India	145	....	..

DOMESTIC SERVANTS.				GENERAL AVERAGE.							
CITIES.		OTHER URBAN AREAS.		RURAL.		URBAN.		CITIES.		GENERAL AVERAGE OF ALL CLASSES EXCEPT INDUSTRIES.	
Circles.	Index Numbers.	Circles.	Index Numbers.	Circles.	Index Numbers.	Circles.	Index Numbers.	Circles.	Index Numbers.	Circles.	Index Numbers.
Madras North .	165	Chota Nagpur .	142	Punjab East .	167	Punjab East .	161	Bihar . .	160	Punjab East .	161
Agra Provinces East.	144	Agra Provinces North and West.	131	Agra Provinces East.	154	Bundelkhand .	155	Punjab East .	156	Bundelkhand .	152
Bihar . . .	135	Bundelkhand .	128	Chota Nagpur .	149	Agra Provinces East.	148	Punjab West .	151	Agra Provinces North and West	147
Agra Provinces North and West.	130	Bihar . .	127	Agra Provinces North and West.	148	Agra Provinces North and West.	147	Central Provinces.	150	Chota Nagpur .	146
Central Provinces .	126	Gujarat . .	127	Bundelkhand .	147	Chota Nagpur .	143	Agra Provinces North and West.	147	Agra Provinces East.	146
Madras South .	125	Konkan . .	125	Punjab West	144	Bihar . .	140	Agra Provinces East.	136	Bihar . .	145
Gujarat . .	124	Madras North-East	125	Central Provinces.	141	Madras North-East.	138	Madras South .	135	Central Provinces.	141
Punjab West .	122	Madras South .	123	Berar . .	138	Central Provinces.	136	Berar . .	130	Punjab West .	140
Berar . .	121	Agra Provinces East.	122	Madras South .	138	Konkan . .	132	Bombay . .	129	Madras North-East.	136
Bombay . .	117	Punjab East .	120	Konkan . .	137	Madras South .	129	Madras North .	126	Konkan . .	134
Punjab East .	115	Central Provinces.	116	Deccan . .	137	Punjab West .	128	Assam . .	123	Madras South	133
Madras . .	114	Punjab West .	113	Madras North-East.	136	Berar . .	128	Bengal North and East.	119	Berar . .	131
Assam . .	107	Assam . .	110	Bihar . .	135	Assam .	127	Gujarat . .	118	Bombay . .	129
Bengal North and East.	107	Sind . . .	110	Madras North	132	Bengal South and West.	123	Bengal South and West.	116	Assam . .	125
Calcutta . .	100	Berar . .	105	Bengal South and West.	131	Deccan . .	123	Karachi .	109	Madras North.	124
Deccan . .	99	Deccan . .	104	Gujarat . .	130	Bengal North and East.	119	Madras . .	109	Bengal South and West.	122
Karachi . .	96	Bengal South and West.	102	Assam .	128	Sind . .	119	Calcutta . .	107	Bengal North and East.	121
Bengal South and West.	94	Bengal North and East.	99	Bengal North and East.	126	Gujarat . .	118	Deccan . .	107	Sind . .	121
India .	116	Madras West .	90	Sind . .	124	Madras North .	115	India . .	128	Gujarat . .	121
..	..	India . .	116	Madras West .	110	Madras West .	109		..	Deccan . .	121
..	..	..	..	..	..	..	..	..	..	Madras West .	110
..	..	..	..	India . .	138	India . .	133	..	..	Karachi . .	110
..	..	..	..	..	..	..	..	..	..	Madras . .	109
..	..	..	..	..	..	..	..	..	..	Calcutta . .	107
..	..	..	..	..	..	..	..	..	..	India . .	..

Extent of the improvement in different circles.

420. A careful study of the foregoing tables shows that the rise in real wages (excluding wages in industries) has been greatest (above 40 per cent.) in Punjab East, Bundelkhand, Agra Provinces East, Agra Provinces North and West, Chota Nagpur, Bihar, Central Provinces and Punjab West, and least (below 20 per cent.) in Madras, Madras West, Calcutta and Karachi.

421. The general results indicated by the foregoing table in regard to the several classes of labourers may be summarised as follows :—

Extent of rise in real wages of general labourers in urban areas other than large cities.

422. Taking India as a whole, the highest rise in *real* wages has been in the case of the general labourers employed in urban areas other than large cities. For this class of labourers, the rise has been the largest in Punjab East, Agra Provinces East, and Bundelkhand, being over 75 per cent. In Bihar and Agra Provinces North and West, it has been between 50 and 60 per cent.; in Madras North, only 10 per cent.; in Konkan, Madras West and Bengal Northern and Eastern, below 30 per cent. and in the others, between 30 and 50 per cent.

Village artisans.

423. Next to the class mentioned above, the rise in real wages for India, as a whole, has been the highest in the case of village artisans. In Punjab East, Bundelkhand, Bihar and Agra Provinces North and West, the rise has been above 50 per cent.; in Chota Nagpur, Central Provinces, Agra Provinces East

Assam and Punjab West, between 40 and 50 per cent.: in Madras West, only 6 per cent. and in the other circles between 20 and 40 per cent.

Agricultural labourers.

424. The third class in order of rise for all India is the agricultural labourer. The rise in real wages for this class has been above 50 per cent. in Punjab East, Agra Provinces East and Chota Nagpur; between 40 and 50 per cent. in Agra Provinces North and West, Punjab West, Bundelkhand, Berar, and Madras South; in Madras West, it has been only 13 per cent. and in the rest between 20 and 40 per cent.

Artisans employed in urban areas other than large cities.

425. The rise in real wages for India, as a whole, of artisans employed in urban areas other than large cities comes next in order. For this class the rise has been above 50 per cent. in Punjab East, Bundelkhand and Agra Provinces North and West; in Agra Provinces East, Madras North-East, and Chota Nagpur, it has been between 40 and 50 per cent.: in Gujarat, it has been only 5 per cent.; in Sind, Madras North, and Madras West, between 10 to 20 per cent. and in the rest between 20 and 40 per cent.

General labourers employed in cities.

426. Taken as a whole, general labourers in cities have obtained the next largest increase in real wages. In Punjab West, Punjab East, Bihar and Central Provinces, the rise for this class of labourers has been above 50 per cent.; in Agra Provinces East, Agra Provinces North and West, Madras South, and Bombay, between 30 and 50 per cent.: in Madras, Assam, Deccan and Gujarat 10 per cent. or below, and in the remaining circles between 10 and 30 per cent.

City artisans.

427. The sixth class in order of rise for all India is the city artisan. The rise in real wages of this class of labourers has been highest in Punjab East, Bihar, Punjab West, Central Provinces, Agra Provinces North and West, being over 50 per cent.; in Gujarat, Madras North, Madras, Karachi and Deccan, the rise ranges from 8 to 20 per cent.; in Calcutta, it has been the lowest, being only 4 per cent.; and in the other circles, it ranges between 20 to 40 per cent.

Domestic servants.

428. For India as a whole, the rise has been the lowest for domestic servants, both in cities and other urban areas, and as a matter of fact, in some circles, there has been an actual fall in real wages, *i.e.*, the rise in nominal wages has not been as large as that in the cost of living. For cities—the rise in real wages in Madras North and Agra Provinces East, has been above 40 per cent.; in Bihar, Agra Provinces North and West, Central Provinces, Madras South, Gujarat, Punjab West, and Berar, between 20 and 40 per cent.: in Bombay, Punjab East, and Madras, the rise has been between 10 and 20 per cent.; and in Assam and Bengal Northern and Eastern, it has been below 10 per cent. In Calcutta, there has been no rise at all, while real wages have fallen in Deccan, Karachi and Bengal Southern and Western: in these four circles, therefore, domestic servants in cities have been adversely affected by the rise in prices. For other urban areas the maximum rise in real wages of domestic servants has been in Chota Nagpur, being 42 per cent.; in Agra Provinces North and West, Bundelkhand, Bihar, Gujarat, Konkan, Madras North-East, Madras South, Agra Provinces East, and Punjab East, the rise has ranged between 20 and 30 per cent.; in the other circles, except Bengal Northern and Eastern and Madras West, below 20 per cent. In the two last-named circles, there has been an actual fall in real wages, indicating that there domestic servants have suffered through a rise in prices.

Industrial wage-earners.

429. For labourers employed in industries:—The rise in real wages of labourers in the Jute industry has been small and almost equal in Calcutta and Bengal Southern and Western. In the Cotton industry, the rise has been highest in Calcutta, being, in 1912, 48 per cent.; Central Provinces come next with a rise of 30 per cent.; in Agra Provinces North and West and Madras North, the rise has

been below 20 per cent.; in Bombay, Madras and Gujarat, on the other hand, there has been a fall in the real wages of this class of labourers, showing that the labourers employed in the Cotton industry in these three circles have not obtained an increase in wages sufficient to compensate for the rise in prices. Railway real wages have increased in Chota Nagpur, Agra Provinces North and West, Bihar, Central Provinces, Agra Provinces East, Madras South, Calcutta and Punjab West. There has been no increase in Bombay, while there has been a fall in Punjab East, Sind, Madras North, Gujarat, Deccan and Madras North-East. Considered as a whole, the rise in the real wages of industrial labourers in all circles has been much less than in those of the other labourers, skilled or unskilled.

Material condition of wage-earners—summary.

430. To sum up the case of wage-earners—the rise of prices has been fully met by a rise in wages in the case of skilled or unskilled labourers not employed in industries or on Railways. Industrial or Railway labourers have in some circles secured an increase in wages commensurate with the rise in prices, while in others the increase in wages has been smaller than the increase in their cost of living; and it is in these circles that the industrial and Railway labourers have been adversely affected by the rise in prices.

Necessity of framing index numbers of agricultural income.

431. To gauge the comparative effects of the rise of prices on the agriculturist in the different parts of the country, it has been found necessary to frame index numbers of his income from the sale proceeds of his surplus produce and then to compare these with the index numbers of retail prices of the commodities which he generally purchases. From the data available it is not practicable to frame any estimate of the average income per head of the agricultural population with any pretence to accuracy, but even from such incomplete data it is possible to construct index numbers which would roughly represent the relation between the agricultural income of different years. The index numbers of agricultural income, however carefully prepared, are sure to be very rough, but even then they should enable us to judge, to some extent, the effect of the rise of prices on the material condition of that class of the community.

How index numbers of agricultural income have been constructed.

432. In constructing index numbers of agricultural income, the following procedure has been followed: The first step has been to estimate the surplus quantity of food grains which the agriculturists have for sale. To estimate this surplus, imports of foodgrains have been added to and exports deducted from the total production, the result being the net available supply; and two-thirds of this quantity have been held as consumed by the agriculturists themselves. The surplus available for sale has been taken at the total production less the quantity consumed by the cultivators. It is the income from the sale proceeds of this surplus grain as well as the sale proceeds of other crops, *e.g.*, jute, cotton, oilseeds, sugar, tobacco, etc., practically the whole of which is sold by them, that generally enables the cultivators to meet their obligations in the way of rent, interest on debt, etc., and to purchase the other necessaries of life. The income of the agriculturist depends, therefore, on the quantity of surplus foodgrains and on that of other crops and their price. The quantity of surplus foodgrains and the entire production of the other crops for the several quinquennia have accordingly been weighted according to the index numbers of the average wholesale prices of the different classes of commodities and also the relative prices during the basic period. Index numbers have then been constructed of these totals as indicative of the total income of the agriculturists. It may be mentioned that figures for imports and exports could not be compiled for the different circles as already explained in Chapter III, and consequently the surplus foodgrains could not be estimated separately for each circle; it has, therefore, been possible only to construct index numbers of agricultural incomes by provinces, in most cases.

433. The index numbers thus calculated indicate the growth or otherwise of the total income of the agricultural community in each province after providing for their requirements of foodgrains. In considering the relative material condition of the community in each province, it is necessary to obtain a measure of the changes in the income per head of population in that community in the several provinces. It has already been explained that the distribution of the population by occupation is not quite reliable; index numbers of the income per head of agricultural population has, therefore, been calculated on the assumption that the agricultural population has increased at the same rate as population as a whole.

Comparison of agricultural income with prices.

434. It is well known that the cultivator grows his own corn and that his wants are but few. The only commodities he purchases other than a few luxuries are oil, salt, spices and condiments, sugar, and cotton manufactures and possibly firewood and lamp-oil (kerosene). We should, therefore, compare the rise in the prices of these commodities with the rise in the agriculturist's income in order to see whether he is beneficially or adversely affected by the rise in prices.

435. The following table compares in index numbers, the total agricultural income, the average income per head of the agricultural population and the retail prices of the commodities which the agriculturist ordinarily purchases. For the present purpose, index numbers of wholesale prices of cotton manufactures at the nearest port from which the province or circle generally obtains its supply has been taken in constructing index numbers of prices of commodities purchased by the cultivators, as statistics of prices of this class of commodities, wholesale or retail, could not be obtained for the circles other than the sea-ports :—

Province or Circle.	AVERAGE INDEX NUMBER OF TOTAL AGRICULTURAL INCOME.				AVERAGE INDEX NUMBER OF AGRICULTURAL INCOME PER HEAD OF POPULATION.				AVERAGE INDEX NUMBERS OF THE RETAIL PRICES OF COMMODITIES WHICH AN AGRICULTURIST GENERALLY PURCHASES.				
	1890 to 1894.	1895 to 1899.	1900 to 1904.	1905 to 1909.	1890 to 1894.	1895 to 1899.	1900 to 1904.	1905 to 1909.	Circles.	1890 to 1894.	1895 to 1899.	1900 to 1904.	1905 to 1909.
Assam	100	134	148	180	100	134	136	155	Assam	100	100	109	120
									Bengal North-East	100	100	110	121
									.. South West	100	103	111	124
Bengal and Bihar	100	109	108	127	100	107	102	116	Chota Nagpur	100	106	112	123
									Bihar	100	101	109	126
									Agra Provinces East	100	102	110	127
United Provinces	100	104	107	131	100	103	106	130	Bundelkhand	100	106	115	132
									Agra Provinces North and West.	100	102	110	125
Punjab and North-West Frontier Province.	100	91	117	149	100	89	112	144	Punjab East	100	103	111	127
									.. West	100	106	106	121
Sind	100	101	114	187	100	97	106	166	Sind	100	105	109	119
									Gujarat	100	100	105	114
Bombay Presidency (excluding Sind).	100	87	102	123	100	89	105	123	Konkan	100	103	108	118
									Deccan	100	104	106	119
Berar	100	98	165	154	100	101	168	149	Berar	100	102	108	118
Central Provinces	100	91	127	166	100	96	132	160	Central Provinces	100	102	104	118
									Madras North East	100	103	107	118
Madras Presidency	100	112	142	158	100	108	132	111	.. North	100	99	105	117
									.. South	100	104	109	119
									.. West	100	103	106	120

Agriculturists in different circles.

436. From an examination of the above table, it will be seen that in Assam the rise in the agricultural income has throughout the period been more than the rise in the cost of living, indicating that the material condition of the agriculturists has been improved by the rise of prices. In the Provinces of Bengal and Bihar, however, the rise in the cost of living has been all along more than the rise in the agricultural income, showing that the cultivators in these parts have been adversely affected by high prices; this, however, is not true for all parts of these provinces—specially of Northern and Eastern Bengal—where the cultivators have obtained very large profits on jute and are substantially better off than before. The flourishing condition of these well-to-do tracts is not clear from the figures, in consequence of their combination with the poorer areas of Bihar and Chota Nagpur, the agricultural population of which are in a more or less deplorable condition. In Bundelkhand also, the cost of living for the agriculturist has throughout the period risen more than his income. In the other parts of the United Provinces the agriculturist fared badly in the quinquennia 1895—99 and 1900—04, but in the quinquennium 1905—09—the period of high prices—his condition has improved, the rise in his income having overtaken or rather exceeded the rise in the cost of living. In the Punjab and North-West Frontier Province, the agriculturist suffered in the quinquennium 1895—99, but in the next quinquennium his condition improved. In the quinquennium 1905—09 there was a further and considerable improvement in his condition. In Sind, the agriculturist's material condition deteriorated until the quinquennium 1900—04, after which his income by far exceeded the cost of living. In the other parts of the Bombay Presidency also, the condition of the agriculturists was worse up to 1904 than in the basic period. In the quinquennium 1905—09, however, his condition improved, but not to the extent as in Sind. In Berar and the Central Provinces, the cultivators were adversely affected only in the quinquennium 1895—99, but since then their condition has remarkably improved. Throughout the period under investigation cultivators in the Madras Presidency have considerably benefited by the rise of prices.

Condition of agriculturist during period of rising prices.

437. To sum up—in the quinquennium 1905—09, the era of famine prices without famine, cultivators in all parts of India, except in parts of Bengal, Bihar, Chota Nagpur and Bundelkhand, largely benefited by the rise in prices.

SUMMARY.

Summary.

438. The conclusions which may be drawn from the statistics collected and which are corroborated by the evidence of witnesses examined in different parts of India are:

Effect on the country as a whole.

439. There has undoubtedly been a real progress, an increase of wealth and a general diffusion of it, in consequence of an increase in the profits of agriculture, and a remarkable increase in wages greater than the cost of living in almost all parts of India during the period of rising prices. There has indeed been a very great increase in the annual income of India. Dr. Marshall defines a country's income as "the net aggregate of commodities and capital, material and immaterial, including services, produced annually by the labour of the country acting upon its natural resources." It is beyond all doubt that in recent years there has taken place with the development of the resources of the country and the growth of enterprise on the part of the community as a whole, a very considerable increase in this annual income. A noticeable sign of this improvement is the enormous increase in India's power of absorbing the precious metals and the large expansion of her import trade, all of which are paid for by her produce. The total amount of gold and silver absorbed in the country during the twelve years ending in 1911 amounted to £116,000,000 of gold and 1,600,000,000 tolas of silver against £27,000,000 and 1,150,000,000 tolas respectively in the twelve years prior to 1900. Her import trade in merchandise has also grown from an average of 62 crores of rupees, in the five years 1890-91 to 1894-95, to 130 crores in 1911-12. Material welfare, as is well known, depends on many factors such as, quantity of food consumed, clothing, housing accommodation, facilities for travel, and on other comforts of life and on the equitable distribution of such means of enjoyment. From this point of view also, the material welfare of the country, as a whole, has increased remarkably, especially during the last 15 years.

440. India has now to part with much less of her produce than formerly to meet her foreign obligations. The surplus of her produce available for export is now, owing to the rise of prices, very much more valuable than it was 20 or even 10 years ago. India's exports have thus grown considerably in value in consequence of the rise of prices, and only a part of this increase goes towards meeting the increased cost of her imports. There has also been a considerable increase in the volume of the imports of almost all classes of goods required for consumption and the increase in the imports of many classes of goods which were formerly considered as luxuries, but are now recognised as necessities, bear eloquent testimony to a standard of living which is rising higher and higher with the rise of prices and the material prosperity of the country.

Effect on the different sections of the community—those who have benefited.

441. The classes which have benefited from the rise of prices are cultivators, and all producers of commodities which have risen in price faster than the cost of production. It cannot be gainsaid that the landowning classes, excluding those Zemindars of Bengal, Oudh and other parts of India who can enhance their tenants' rents only at considerable intervals and including the proprietary brotherhoods of Northern India and the petty proprietors holding their lands directly from the State in the ryotwari provinces of Madras, Bombay, Berar, Assam, and Burma, have benefited, for the profits of agriculture are greater than they were. In every province the price of land has increased; and in many parts this increase has been considerable. The labouring classes are better off everywhere, wages having risen much more than the cost of living and in times of scarcity labour being much more mobile than formerly.

Those who have been adversely affected.

442. The classes which have been adversely affected by the rise of prices are the great Zemindars and other landlords of Bengal, Oudh and other parts of India, who can enhance their tenants' rents only at considerable intervals and who, therefore, cannot adjust their rents to meet the change in prices. Holders of Government and other securities and debentures carrying fixed rates of interest, producers who cannot charge higher prices but whose expenses have increased with the rise of prices, lawyers, medical practitioners and other professional classes whose income depends on customary fees, employés in Government and private service on fixed salaries or salaries on a graded scale, persons engaged in small industries such as weavers, rice huskers, etc., who are unable to compete with imported articles and manufactures from Indian mills driven by machinery—these classes have been disadvantageously placed by a rise of prices. Priestly castes, scions of old families, and others who, from religious and caste motives, have been unable to accommodate themselves to the changing order of things have also suffered from the rise of prices.

Improved standard of living.

443. The standard of living among all classes of the population, especially among landholders, traders and ryots, has increased very considerably in recent years, and extravagance on occasions of marriage and other social ceremonies has seriously increased. The average villager lives in a better house and eats better food than did his father; brass and other metal vessels have taken the place of coarse earthenware and the clothing of his family in quality and quantity has improved. We may also say that the increase in passenger miles travelled predicates the existence of spare money to pay for railway fares.

Effect on agriculturists in different circles.

444. In Assam, Northern and Eastern Bengal, and in the Madras Presidency, the ryots have been in good circumstances throughout the period under enquiry. In the Punjab and North-West Frontier Province and the Central Provinces and Berar, the cultivators have reaped very large profits from the high prices of their produce during the last thirteen years and are now particularly well off. In the United Provinces of Agra and Oudh, except Bundel-

khand, the position of the ryots has considerably improved from the high prices that have ruled since 1905; and the same may be said of the Presidency of Bombay—the improvement being specially marked in Sind. It is only in Bundelkhand, Bihar, Chota Nagpur and in some parts of Bengal that the ryots have been adversely affected by the rise in prices, the growth of their income having been less than the rise in prices throughout the period under enquiry. In good years they and their families manage to supplement their income by working as labourers outside their holdings, but in bad years, when no employment can be had, their position is one of jeopardy, unless they can obtain credit or emigrate to towns or other tracts.

Effect on wage-earners in different circles.

445. The wage-earners of all classes and in all circles have secured an increase in wages commensurate with the rise in the cost of living. The only exceptions are domestic servants in cities and other urban areas in a few circles and wage-earners employed in some industries. The cash wages of domestic servants employed in cities in the Deccan, Karachi, and Bengal Southern and Western, and of those employed in other urban areas in Bengal Northern and Eastern, and Madras West, have lagged behind the rise of prices, and the increased cost of living has affected them adversely. The same has been the case with wage-earners employed in cotton mills in Bombay, Madras and Gujarat, breweries in Punjab West, tea-gardens in Assam and paper mills in Bengal Southern and Western.

General conclusion.

446. In summing up the general conclusion of the effects of the rise of prices on the country, as a whole, we may agree with Jevons * when he says, " I cannot but agree with Macculloch,† that, putting out of sight individual cases of hardship, if such exist, a fall in the value of gold must have, and, as I should say, has already a most powerfully beneficial effect. It loosens the country, as nothing else could, from its old bonds of debt and habit. It throws increased rewards before all who are making and acquiring wealth, somewhat at the expense of those who are enjoying acquired wealth. It excites the active and skilful classes of the community to new exertions and is, to some extent, like what a discharge from his debts is to the bankrupt long struggling against his burdens. All this is effected without a breach of national good faith, which nothing could compensate.

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* " Investigations in Currency and Finance "—A Serious Fall in the Value of Gold ascertained, and its Social Effects set forth (1863), Section XXXIII.

† Encyclopædia Britannica (8th Edition); Art. Precious Metals.

CHAPTER XIV.

Conclusion.

The time taken to complete the enquiry.

447. This report on the extent, causes and effects of the rise of prices in India may now be concluded with a brief summary of what has been done. The enquiry has taken three years to complete, which, in view of the extensive touring in all parts of India and the collection, compilation and correlation of the mass of statistics published, is not perhaps excessive.

Summary of the general method of investigation.

448. In the early chapters of this report, it has been pointed out that in order to examine whether the rise of prices has been confined to any special areas and to ascertain what the effects of the rise have been on the different sections of the community in different areas, it has been necessary to divide India, excluding Burma, which under orders has been excluded from the scope of the enquiry, into economic homogeneous areas, so that after examining carefully the statistics collected for these areas, we could generalise for India as a whole. These circles, numbering 24 in all, differ, as has been explained, very greatly in soil, climate, and the crops which they produce. The statistics of prices and wages now published by the Commercial Intelligence Department could not, for reasons already explained, be utilised, and it has been necessary to collect, locally, reliable statistics of prices and wages. The next step was the construction of index numbers which have been used throughout, for purposes of comparing fluctuations not only in the general price level but also in prices of individual articles, wages and most other phenomena dealt with in the report.

The extent of the rise of prices.

449. Prices have oscillated up and down, sometimes violently, throughout the period under investigation. In 1897, the general level of rupee prices rose to 121 from 106 in 1896. In 1900, it rose to 122 from 101 in 1899; after this it fell steadily again to 106 in 1904. Since then it rose steadily to 143 in 1908, after which it fell again to 132 in 1910 and then rose again to 141 in 1912. If fluctuations due to famine and other temporary causes be excluded, the general price level would show a steady increase from an average of 100 in 1890—94 to 137 in the quinquennium 1908—12. The rise has been specially marked since the year 1905. In the quinquennium 1905—09, the general average was 31 per cent. higher, and in the triennium 1910—12, 36 per cent. higher than in the basic period.

450. The following is a summary table showing gold and rupee prices for all commodities for India as a whole :—

Year.	Foodgrains—cereals.	Foodgrains—pulses.	Sugars.	Tea and Coffee.	Other articles of food.	Oilseeds, oils and oilcake.	Textiles—Jute.	Textiles—Cotton.	Other textiles.	Hides and Skins.	Metals.	Other raw and manufactured articles.	Building materials.	General average.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(1) *Rupee Prices*—														
1890—94 .	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1905—09 .	139	146	104	68	122	132	134	119	95	155	123	119	133	131
1910—12 .	132	129	111	82	133	149	141	141	96	165	122	128	145	136
(2) *Gold Prices*—														
1890—94 .	100	100	100	100	100	100	100	100	100	100	100	100	100	100
1905—09 .	144	151	108	71	127	137	139	124	99	161	127	124	138	135
1910—12 .	137	134	116	86	138	155	147	146	100	172	127	133	151	141

Classes of commodities whose prices have risen most.

451. The rise has been especially marked in the case of "hides and skins," "food grains—pulses and cereals," "building materials" and "oilseeds," all of which have risen over 40 per cent. above the level of the basic period. In the last quinquennium 1908—1912, the rise in rupee prices was greatest in the case of "hides and skins" (159), "oilseeds and oils" (145), "foodgrains—pulses" (143), "foodgrains—cereals" (142) and "building materials" (142). Cotton and Jute have risen 33 and 31 points respectively in comparison with the basic period. In some other groups, the rise has been less, while there has been an appreciable decrease in the price of tea and coffee, imported sugars, coal, shellac, and dyeing and tanning materials, especially indigo.

Localities in which the rise has been greatest.

452. The rise of prices has been greatest generally in areas which have suffered from famine and least in the circles which are practically immune from that calamity, notably Assam. The rise has been greatest in Bundelkhand, Berar, Sind, Madras South, Agra Provinces North and West, Punjab East, Deccan and Punjab West, and least in Assam and at the ports except Karachi where the rise has been largest, namely, 49 per cent. The rise has varied, in the circles first mentioned, from 40 to 45 per cent., while it has been only 26 to 30 per cent. at the ports. As already pointed out, in comparing the ports with upland circles, it should be remembered that prices at the ports had generally been higher than in the upland circles, in the earlier years, and an equal rise in prices would result in the percentage of rise at the ports being lower than in the other circles: moreover, the ports obtain their supplies from the cheapest markets and so prices there would not fluctuate as widely as in upland circles. With the linking up of markets by railways, the variations between circle and circle, and district and district, are very much less now than formerly, and are greatest in places which are most remote from seaports and from areas which are practically immune from the scourge of famine and which ordinarily have surpluses available for areas in which the supplies are deficient.

Causes of the rise of prices.

453. The causes of the rise of prices in India, in recent years, have close relation to those operating in other countries. India has now come very much closer into touch with the world markets, consequent, to a large extent, on the triumph of the Gold Exchange Standard. In India, there is another important factor to be considered, *viz.*, capricious seasons, which curtail, sometimes very seriously, the supply of commodities. India, it is often said, is entirely at the mercy of the vagaries of the monsoon. The effect of the vicissitudes of the season is more or less temporary, but a shortage of supply, consequent on a deficient monsoon, has unfortunately been of rather frequent occurrence in the period under enquiry. It has been evident in almost every quinquennium between 1890 and 1912. It has been shown that, in recent years, the production of foodgrains has not been keeping pace with population. This would explain the almost continuous rise in the prices of foodgrains. There has also been an increased demand for Indian products in the world markets and also in India itself, owing to the growth of the general prosperity of the country and a remarkable improvement in the standard of living among all classes of society. Extension of communications and reduction of freights have been very important factors in the rise of prices during the last decade. Railways have developed in India from a total of 17,000 miles in 1891 to 24,000 miles in 1901; 27,000 miles in 1905; and 32,000 miles in 1912. Road mileage has also considerably increased as also communication by telegraph. Railway and maritime freights have fallen considerably though during the last two years ocean freights have shown an increase owing to an unparalleled demand for transporting the surplus produce to other countries. Owing to an unparallaled activity in shipbuilding in recent years, there are signs of freights going down again. The effect of a fall in freights, on prices, can hardly be over-estimated. The expansion of communica-

tions and the lowering of the direct and indirect costs of transport have tended to bring up prices of agricultural produce of India, relatively, to the level of the prices of the same articles in Western Europe, and to bring up the prices in upland districts of India, relatively, to the level of the prices at the ports. The increase in credit and the improvement in banking and monetary facilities, which have been remarkable not only in this country, but throughout the world, have played a very important part in raising prices to their present level. This improvement has been brought about by an increase in credibility, *i.e.*, securities which Bankers accept in making advances, and by an increase in the world's production of gold. Destructive wars and the increased expenditure on armaments, which in England alone has increased from £35,445,000 in 1895 to £68,364,000 in 1911, are the most important among the other remaining causes.

The permanency of the rise.

454. So far as India is concerned, the rise of prices is likely to continue for some time to come. An analysis of the factors affecting prices would lead one to believe that, if exceptional movements in times of famine and commercial crisis be left out of account, the present high price level will be maintained, if not raised, for some time to come.

The effect of the rise of prices.

455. In the last chapter it has been shown that the effect of the rise of prices on India, as a whole, has been beneficial. India has now to part with much less of her produce to meet her foreign obligations for the simple reason that her produce has risen in value in European markets. Landlords have, except in some special areas, received increased cash rents, cultivators increased profits from agriculture, and wage-earners generally have gained in consequence of their wages having increased more than prices. It is only persons on fixed salaries or dependent on income from securities and shares, and professional men who live upon customary fees, who have suffered from the rise in prices, as their income, not being at all elastic, has not risen sufficiently to meet the increased cost of living. The effects on the different sections of the community in different areas have been in the same direction and differ only in degree.

456. It now remains for me to thank all those who have given me assistance in this enquiry. From the Chambers of Commerce, European and Indian, and other Trade Associations, District Officers, Secretaries to Government, non-official Members of the Legislative Councils, business men and others, whose local knowledge and experience were invaluable, I have received much help. To Messrs. Shirras and Gupta, and my office staff I am under great obligation. Mr. Shirras has shown great energy and devotion to work, and his knowledge of the theory of Economics and the information which he collected from a mass of literature on the subject, have been of great use to me. Mr. Gupta has carried out his duties most efficiently, and the completion of the work is, in no small measure, due to his energy and the skill which he has displayed in the compilation and correlation of the statistics and in the preparation of the charts published.

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APPENDICES.

APPENDIX A.

Special Features of the Economic Circles.

(*Chapter II, page 4, para. 13.*)

India divided into 24 Circles.

1. The special features of the four sea-port towns of Calcutta, Bombay, Karachi and Madras, which have been treated as independent circles, have already been described in Chapter III. The considerations on which the several provinces of India have been divided into homogeneous circles are described in detail below.

Assam treated as one Circle.

2. Assam has been taken as a circle by itself. It is made up of the Surma valley, the valley of the Brahmaputra and the intervening range of hills as well as the Lushai hills, which lie south of Cachar. Both the valleys are alluvial plains surrounded on three sides by hills, but the process of delta formation has not proceeded in them so rapidly as in the rest of the Gangetic plain. The total amount of rainfall in Assam is always abundant, but is sometimes unevenly distributed. The agricultural conditions prevailing in the two valleys differ widely, owing to the difference in their elevation above sea level. During the rainy season there is usually a strong current in the Brahmaputra and the other rivers of the Assam valley and where the current is swift, it is only the heavier portion of the matter held in suspension—that is, the sand—which is deposited. In the Surma valley, on the other hand, there is very little fall and the rivers are sluggish, and when they overflow enrich the fields with silt. It is this circle which contains the large tracts of land that have been brought under the cultivation of tea.

Bengal divided into 3 Circles (including Calcutta).

3. In the newly created Bengal Presidency, as elsewhere, the important factors of soil, surface and rainfall vary widely in different localities. The soil may be classed as either old alluvium or recent alluvium. The conformation of the surface in the old and the new alluvium is widely different, the former being in process of denudation and the latter of formation. In the tract covered by new alluvium, the periodical deposits of river silt maintain a perfectly level surface which is eminently adapted for rice cultivation.

4. The Presidency is naturally sub-divided into several distinct parts. West Bengal or the part west of the Bhagirathi lies outside the true delta. The eastern portion of this tract is low and of alluvial formation, but further west laterite begins to predominate and the surface rises and becomes more and more undulating and rocky until at last it merges in the uplands of Chota Nagpur. Except in the Hooghly and Howrah districts, the old alluvial soil is mostly dependent upon artificial manure to maintain its fertility. Central Bengal or the part lying south of the Pudma between the Bhagirathi on the west and the Madhumati on the east was formerly the Ganges delta, but it has been gradually raised above flood level and the great rivers which formerly flowed through it, depositing their fertilising silt, yielding an ample supply of drinking water and draining it, have shrunk into insignificance. Their mouths have been silted up and their banks are often higher than the surrounding country which they are no longer able to drain. Eastern Bengal, or the country east of the Madhumati, includes the present delta of the Ganges and the Brahmaputra, where the process of land formation is still going on. Here the new alluvium is periodically fertilised by fresh deposits of silt from the overflow of the Ganges and the Brahmaputra, whose waters possess the fertilising properties of the Nile. North Bengal lies north of the Pudma and is wholly alluvial with the exception of the greater part of the district of Darjeeling and an elevated tract occupying a considerable area on the confines of the Dinajpur, Malda, Rajshahi and Bogra districts. In spite of its proximity to the hills, the general level of the alluvial

country is very low, especially in Rungpur and the central part of Rajshahi, and it suffers from obstructed drainage due to the silting up of the rivers and the gradual raising of their beds.

5. The distinction between the east and west of the Presidency due to the difference in soil and surface is accentuated by the unequal distribution of rainfall which is generally far less regular and copious in the west than in the east. Not only do the eastern districts receive a great deal more rain, but owing to the normal overflow of the rivers that traverse them, they remain practically under water for six months in the year. The surface of this tract is low and flat and much of it is covered with huge marshes where rice and jute luxuriate.

6. Notwithstanding such wide differences in the physical and meteorological conditions of the different parts of Bengal, the province has been sub-divided into only three circles, namely, (1) Calcutta, which stands by itself, (2) the jute areas, and (3) the rice producing districts, jute and rice being the principal crops in the Presidency. The jute areas, *i.e.*, Northern and Eastern Bengal, include all the districts which belonged to the old province of Eastern Bengal and Assam with the exception of Assam, which has been constituted into a separate circle, and the districts of Backergunge, Noakhali and Chittagong, that lie on the borders of the Bay of Bengal and are predominantly rice districts, have been taken in the other circle, *i.e.*, Southern and Western Bengal.

Orissa included in one of the Bengal Circles.

7. The plains of Orissa are a flat alluvial tract, of which the centre and south comprise the delta of the Mahanadi and the north has been formed by the fluvial deposits of the rivers which drain the southern flank of the Chota Nagpur plateau. It thus consists of the narrow strip of alluvium lying between Western Bengal and Madras, the Chota Nagpur plateau and the Bay of Bengal. Orissa is one of the most backward parts of India and contains few important marts or centres of trade and the impossibility of obtaining any reliable statistics of prices has necessitated its inclusion in Southern and Western Bengal.

Bihar and Orissa Province divided into two Circles.

Bihar.

8. Of the province of Bihar and Orissa, the latter, as just mentioned, has been included in Southern and Western Bengal and the rest of the province has been divided into two circles —Bihar and Chota Nagpur—the former differing essentially from the latter. Bihar is divided by the Ganges into two parts, north and south. North Bihar is a level plain falling very gradually from the foot of the Himalayas and with a belt of fairly high land along the banks of the Ganges. Between these two extremes the general elevation is lower and considerable areas are liable to damage by floods. The soil consists mainly of the older alluvium, a yellowish clay, with frequent deposits of *kankar*; but in many parts this has been cut away by the torrents that rush down from the Himalayas, and the low land, through which these rivers have at one time or another found an exit to the Ganges, is composed of more recent deposits of sand and silt brought down by them when in flood. In south Bihar the effects of recent fluvial action are less marked, specially towards the east, where the outlying hills and the undulations of the Chota Nagpur plateau trench more and more upon the Gangetic plain until at Monghyr they extend as far as the river itself and offer an effectual opposition to the oscillations in its course, which the more yielding alluvial soil is unable to present elsewhere. Bihar differs from Bengal in nearly all respects. The extremes of temperature are far greater, the fertilising effect of annual inundations is absent and the rainfall is more capricious than in Bengal. The population is denser, the people healthier and hardier though not so prosperous. It is more liable to droughts. Rice is the principal crop, but the rainfall is often insufficient to bring it to maturity and has to be supplemented by artificial irrigation: the products are far more varied, sometimes four crops, such as gram, wheat, sesamum and linseed being grown together in the same field.

Chota Nagpur.

9. Chota Nagpur consists of the crystalline plateau extending into the Tributary States of the Orissa and the Central Provinces on the south and west and through the Sonthal Parganas to the Ganges on the north-east, while its outlying fringes stretch out into the south of the Patna and Bhagalpur divisions on the north and the Burdwan division on the east. The soil is gneissic, and it possesses great mineral wealth, the richest coal fields being situated within it.

United Provinces divided into three Circles.

10. The United Provinces of Agra and Oudh include four distinct tracts of country, namely, the Himalayan tracts, the Sub-Himalayan tracts, the great Gangetic plain, and portions of the hill systems of Central India. The statistics which could be collected for the hill tracts were not only few but even misleading. These have, therefore, been practically left out of account, though the area and outturn figures have been included in Agra Provinces, North and West (including Oudh) Circle. It is not advisable to group the western submontane districts with those of the eastern submontane; Basti and Gorakhpur are more akin to the eastern districts of Azamgarh, Benares, etc., as rice forms the most important crop. With a view to keep down the number of circles, the United Provinces have been divided, after consultation with local authorities, into three circles. The Eastern circle comprises the Eastern Agra districts and the two submontane districts of Basti and Gorakhpur. The rainfall is heavier in this circle than in the Western and the population denser. The second circle includes the rest of the submontane districts, the Doab, *i.e.*, the tract between the Ganges and the Jumna, the central districts and Oudh. This circle thus comprises most of the prosperous districts in the province. The Doab consists of a gently sloping plain of alluvial soil in which neither rock nor stone approaches the surface, though beds of *kankar* are found. The rainfall is scantier than in the Eastern Circle, but the tract is very well protected by canals. In Oudh, there are no canals, but the soil is generally fertile and consequently closely cultivated.

11. The third circle is Bundelkhand, an exceptional area, of which the climatic conditions are much more akin to those of Central India than of the United Provinces. The tract is situated on and below the eastern slopes of the great Central Indian plateau and is broken up by low rocky hills. The soil is rocky and infertile with considerable patches of the richer type known as "black soil," which differs entirely from the alluvium of the great plain. The spring level is low and there is little canal irrigation. The area is peculiarly liable to famine from either an excess or a deficiency of rainfall, and as a whole ranks as the poorest and most backward portion of the provinces.

Punjab and North-West Frontier Province together form two Circles.

12. The historic province of the Punjab was divided into two administrations, the Punjab and the North-West Frontier Province, in 1901. The Punjab proper does not lend itself to grouping into economic homogeneous areas. The salt range forms, perhaps, a distinctive feature, but it dovetails into the districts of the North-West dry area and the Himalayan submontane. The Himalayan ranges rise so gradually that it is difficult to say where the Himalayan areas begin and the sub-Himalayan end. Excluding the Himalayan and other hill tracts and the ravines of the Rawalpindi, Attock and Jhelum districts, it consists of a vast alluvial plain broken only by the wide valleys of its rivers. Its soil is a sandy loam interspersed with patches of clay and tracts of pure sand. The quality of the soil is, however, of comparatively little importance, possessing, as it does, great facilities for irrigation, natural or artificial. The monsoon current extends only to the extreme south-eastern districts. The rainfall is fairly sufficient for agricultural purposes in the hills and the submontane tracts, but diminishes rapidly as the distance from the hills increases, being as little as 5 and 7 inches in Muzaffargarh and Multan. The province has been divided into two circles, the Eastern Punjab and the Western Punjab. The first comprises the

districts east of the Chenab and the Jhelum, the most prosperous in the province, while the second consists of the north-west dry zone.

13. The North-West Frontier Province naturally sub-divides itself into two main tracts. The first lies east of the Indus and consists of the sub-Himalayan district of Hazara where the soil, deep and rich in the plain tracts, receives sufficient rainfall. Here a good spring crop is assured except on the rare occasions when the winter rains fail; but the autumn harvest is inferior to that of the lower hills, where it forms the chief crop. In the other tract west of the Indus, the rainfall is uncertain in amount and uneven in distribution, and cultivation depends more on facilities for irrigation than on the intrinsic fertility of the soil. Peshawar and Bannu valleys are well irrigated and are, therefore, highly cultivated. In Dera Ismail Khan, in the skirts of the hills, the crops depend on embankments which hold up the surface water, and in the riverain strip, on wells and floods from the Indus and the hill torrents. The valleys of Kohat contain a good clean loam singularly retentive of moisture, and are, therefore, well able to resist drought. Elsewhere, the harvests are precarious, being mainly dependent on rainfall. The province as a whole, is similar to the Western Punjab, and has, therefore, been taken in that circle.

Presidency of Bombay divided into six Circles including Bombay and Karachi.

14. The Presidency of Bombay contains tracts of country varying greatly in climate and physical aspects. It has been divided into six circles, *viz.*, Bombay (Port), Karachi (Port), Gujarat, the Konkan, the Deccan and Sind. Sind, the lower valley of the Indus, has no characteristics which would lead one to combine it with the rest of the Presidency, from which it is cut off by the desert or the sea. In climate, soil, surface, language, dress and customs of its inhabitants, Sind is altogether dissimilar from the Konkan, Gujarat, or the Deccan. Sind is a dreary desert plain broken here and there only by low cliffs or undulating sand heaps, save only where the life-giving inundations of the Indus or the silver streak of a canal have transformed a waste of sand and scrub jungle into broad acres of smiling crops. In striking contrast to Sind, the fertile and well cultivated plains of Gujarat, the garden of the Presidency, yield a succession of abundant crops. This circle is watered by many rivers, the most famous of which are the Nerbudda and the Tapti whose valleys are sheets of unbroken cultivation. The rest of the Presidency falls into two other natural divisions—the Konkan and the Deccan. The Konkan is a continuous coast line, below the ghats of rice-bearing areas, and groves of cocoanut palms watered by a never-failing supply from the storm clouds of the south-west monsoon. "Behind the ghats lie, in the scantily watered tracts of the Deccan plateau, an almost treeless plain sloping from the rock-bound ghat edge towards the level fields of Berar and Hyderabad, protected by the hills from the onset of the monsoon, which at times surmounts their crest only to hurl its heavy clouds across the plains and to leave them unwatered and untilled." In the valleys of the large rivers the soil is more productive, but the country is ever haunted by the spectre of famine. To the south of the Deccan proper, however, there are three districts, Belgaum, Dharwar, and Bijapur, forming the Karnatak, which are more favoured than the northern plateau. Owing to the edge of the ghats being thickly wooded to the west of these districts, they enjoy a better water supply than the arid plain further north, and are also able to reckon on a more certain rainfall. In Dharwar, a system of numerous small tanks for water storage permits the cultivation of irrigated crops on a large scale. Khandesh has been included in the Deccan, though it is frequently excluded from it, as it is more akin to the plains of the Central Provinces and Berar, especially in its rich fields of black cotton soil, growing excellent cotton and wheat.

Central Provinces and Berar treated as distinct circles.

15. The Central Provinces and Berar have not been combined to form one economic circle. In Berar the most important crop is cotton, for which the deep

rich, black and exceedingly fertile loam of the Central valley is eminently suited; in the Central Provinces, on the other hand, cotton predominates only on the shallow black soil of Nimar, Wardha, the west of Nagpur and the south of Chhindwara. In the rest of the Province it has no influence on the economic condition of the people. The heavy black soil of the Nerbudda valley is suited to the growth of wheat, linseed, gram and other cold season crops, which are dependent on the moisture remaining in the ground from the monsoon rainfall and on the showers received during the months of December and January. The Wainganga and Mahanadi basins, including the south of Balaghat, Bhandara and Chanda and the three Chhatisgarh districts, form the rice lands of the province. The rainfall is heavy, and the land, though of natural fertility, responds readily to manure and irrigation. There is yet another part where the lands are the poorest in the Province. They require long resting fallows and the cheap millets which they produce are entirely dependent on the rainfall of August and September. So many sub-divisions of the small province being impracticable, it has been taken as one circle.

Madras Presidency divided into five Circles including City of Madras.

16. The Madras Presidency has been divided into five circles, *viz.*: -Madras (Port), Madras North-East, Madras North or the Ceded Districts, Madras South and Madras West. The North-Eastern circle includes the strip between the Eastern Ghats and the Bay of Bengal and extends as far south as the Nellore District. It possesses two large irrigated areas in the deltas of the Godavari and Kistna rivers, which present an interminable sea of green or golden rice fields dotted with villages surrounded by palm trees. It shares, through the Bay current, in the south-west monsoon as regards the northern districts, and obtains the full benefit of the north-east monsoon and has a rainfall which averages between 30 and 40 inches. It is essentially the land of the Telegus. The Northern circle is made up of the Madras Deccan districts. These districts, usually known as the "Ceded Districts," are mostly infertile and are seldom irrigable. The rainfall is usually under 30 inches. The Southern circle is the country of the Tamils. It contains in the delta of the Cauvery some of the richest districts in the Presidency, but the Southern and Central districts get only a moderate and capricious rainfall. Where the rainfall is least abundant, it is most capricious in both amount and distribution: there are frequently excessive and destructive intervals or premature cessations at critical seasons, while much of the rain is too light to be of use under a tropical sun or to put any water into the irrigation sources. The atmosphere is extremely dry for most part of the year and dew is general only in the cold season. To hostility of climate is added considerable inferiority of soil. The deltas and river margins, indeed, are of rich alluvial mould and, as mentioned above, present a sea of green or golden rice-fields, and over large tracts is found the retentive black cotton soil: but the soils over vast areas are shallow, gravelly and sandy, overlying a sterile and even impenetrable subsoil of gravel and rock. Much even of the black soil is inferior, being saline and shallow.

17. The Western circle is a circle by itself. It includes the tract lying in the province between the Indian Ocean and the Western Ghats which obstruct the south-west monsoon. It enjoys a heavy and unfailing rainfall of over 100 inches, three wet crops a year on unirrigated land being frequent. It has the most beautiful scenery in the whole province, with its heavy tropical vegetation, always green, and always flourishing, and its towering backward bound of the Western Ghats. As one travels through the gap at Palghat from the east, one leaves a level upland almost treeless, and enters a country of bamboos and palms of rice-fields and streams. The dwellings in the west are not arranged in villages, but each has its own fenced compound; the countenances of the people are different: so are their houses, their temples, their clothing and even their topknots.

APPENDIX B.

Collection and Compilation of Statistics of Prices.

(Chapter III, page 14, para. 23.)

Sources of Price Statistics.

1. The sources of the price statistics have been (1) the official publications of the Government of India, and of the Local Governments; (2) the published Prices Current of the Chambers of Commerce; (3) the records of district and central jails, hospitals, district boards, municipalities, the Public Works Department and their contractors, and Courts of Wards Estates; and (4) the account books of merchants, European and Indian, and of private gentlemen. The publications of the Government of India, which deal with quotations of prices, are the volumes "Prices and Wages" and "Variations in Indian Price Levels expressed in Index Numbers." The price ratios in the second of these volumes are obtained from the first in the majority of cases. For the purposes of this Enquiry the price quotations contained in these volumes have not been found comprehensive enough.

Retail prices.

As regards retail prices, continuous quotations from 1884 are given in the "Prices and Wages" for only 11 articles, *viz.*, common rice, wheat, barley, jowar or cholum, bajra or cumbu, marua or ragi, kangni, kakun or korra, gram or kadalai, maize, arhar dall, and salt. These quotations are the annual averages of the rates given in fortnightly returns, submitted by selected district officers, of the prices prevailing at the headquarters of their districts on the last day of each fortnight. Some of the 12 articles of which quotations are given, are, however, only common in special parts of India, and no quotations have been given for them for other parts where they do not form staple articles of trade and consumption. In fact, there is hardly any part of India for which quotations have been given for all these 11 articles.

Wholesale prices.

2. As regards wholesale prices, the "Prices and Wages" gives quotations for 23 articles in 86 independent marts distributed over the whole of India, but these quotations are available only from 1897. These also have been compiled from a separate set of fortnightly reports submitted by district officers under orders of the Government of India issued in 1896. The quotations are the averages of the prices governing actual transactions on the last day of each fortnight or the last previous day on which any wholesale transaction has actually taken place, a wholesale transaction being taken to mean one in which not less than 10 maunds of foodgrains, seeds, grass and straw and one maund of articles like turmeric, tobacco, etc., change hands. In the case of live stock, prices are quoted for a score of sheep and for a pair of bullocks. The prices quoted are only for such articles as form staples of local trade for the mart concerned. These reports are also compiled in the same way as those for the retail prices and the "Prices and Wages" show, similarly, annual averages of the rates given in the fortnightly returns. The "Prices and Wages" also shows average prices of staple articles of import into Calcutta and Bombay, the number of articles for Calcutta being only 12 and that for Bombay only 3. There are no such quotations for the ports of Madras, Karachi, and Rangoon. The prices quoted are those of the first weeks of January and July of each year or for the nearest period when quotations are not available for these weeks. Similar quotations are also given for staple articles of export, 23 kinds for Calcutta (including different grades of the same class of commodity), 9 for Bombay and Karachi, 3 for Madras, and only rice for Rangoon. In the case of some of these articles, however, quotations for more than one grade are given. Wholesale prices of certain staple articles in Calcutta are also quoted for January of each year as also average annual prices paid by the Commissariat Department in the Lucknow, Meerut, Lahore, Rawalpindi and Peshawar divisions.

Wholesale prices. Statistics published in "Prices and Wages" rejected.

3. The statistics for the ports given in the "Prices and Wages" have been rejected because they are rates prevailing only in one or two months of the year; the commissariat statistics have been discarded because a comparison with prices, furnished from other sources, showed that they are evidently for articles of an entirely different quality from that quoted by merchants and Chambers of Commerce. The other retail and wholesale prices published in the "Prices and Wages" are very meagre and quite inadequate for the purposes of this enquiry; they are not also very reliable. The quotations, though *primâ facie* given for a continuous period, are sometimes for entirely different grades of the same article. Thus in the shellac quotations of Calcutta, First Orange is quoted up to January 1903 and then T. N. from July 1903. Similarly, Second Orange is quoted up to January 1903 and Gal "garnet" from January 1904. Two of the chief firms of shellac brokers, however, say that these grades should not, in any circumstances, be combined to show the price level of shellac from year to year.

How Statistics of prices published in "Prices and Wages" are collected.

4. It is perhaps unnecessary to describe in detail how the statistics of prices embodied in the "Prices and Wages" are actually collected in the various provinces. The most important features are, however, as follows: In Bombay, price statistics are collected by a clerk or karkun of the mamlatdar's office. Sometimes the mamlatdar's office gets a note of the prices current from a local *bunnia* or merchant, and this forms the basis of the returns. The figures are checked by the mamlatdars, by an Assistant or Deputy Collector and periodically also by the Prices Current Inspector. The duties of the Prices Current Inspector are the inspection of registers, and the testing of entries by local enquiries. The Collectors were practically unanimous in saying that they themselves or their superior assistants rarely had time to examine the price statistics (except in times of scarcity and famine) before these were forwarded to the Director of Agriculture. This was found to be the case in the other provinces as well. Many Collectors in Madras, for example, never scrutinise the statistics of prices furnished to the Board of Revenue because of the heavy work which they have to do. The price statistics in Madras are got from patels and others, and furnished to the Chief Accountant at the taluka headquarters. The tashildar checks these figures when scarcity threatens. The Tashildar sends the returns to the Collector or District Magistrate, who in turn sends them to the Board of Revenue.

5. In Bengal, statistics are collected by quite subordinate officers at certain marts or bazaars, and are nominally checked by a Deputy or Sub-Deputy Collector at headquarters. The statistics published as District Prices are the prices prevailing only at the headquarters of the district. In the United Provinces the statistics are furnished by Tashildars who receive the rates from Bazaar Chaudhries; the Deputy Collector at headquarters examines the statistics before they are sent to the Director of Land Records and Agriculture, and to the Superintendent of the Government Press, Allahabad, for publication in the United Provinces Gazette. These statements of prices published in the United Provinces Gazette can, however, be checked by the Director of Land Records' office after publication. The procedure as regards price statistics in the Punjab is similar to that prevailing in the United Provinces. In the North-West Frontier Province, however, the statistics are furnished to the Revenue Commissioner by the Deputy Commissioner. According to the Deputy Commissioner of Bannu, "The Prices Current are daily attested by a municipal commissioner and entries are made under his supervision. In the evening, the Tashildar or the Naib-Tashildar verifies the entries. In addition to this check there is the additional check of the Treasury Officer who has general supervision over this work. Every month the Treasury Officer checks the entries by personal enquiries from the Chaudhries." In Assam the price statistics are collected by the Nazir and checked by an Extra Assistant Commissioner in charge

of thé Nazarat. The Extra Assistant Commissioner is supposed to go to the bazaar to check the figures.

6. In the Central Provinces, details of prices are received from the tashils. The quotations are collected by the Kanungo, who personally makes enquiries in the bazaar and reports the rates thus ascertained. At the headquarters the City Magistrate is responsible for having the returns correctly prepared before they are sent to the Director of Land Records. In Burma, the price statistics are collected by the Township Officer and Bazaar Gaung. The Bazaar Gaung, after enquiry in the bazaar from paddy brokers and shopkeepers, furnishes a report which is the basis of the half-monthly report, sent by the Deputy Commissioner to the Commissioner of Settlement and Land Records. A great defect, perhaps the greatest, of all these district figures is the lack of check, except a merely nominal one, as to their accuracy.

7. The Government of India have always attached great importance to the accurate recording of prices quoted by District Officers, but proper care and supervision do not appear to have always been exercised in the compilation of these statistics. Deputy and Assistant Collectors, and even Collectors are, however, up to the eyes with urgent and necessary work, so much so that they really have no time for checking compilations of price statistics, which are, therefore, left almost entirely to subordinates who often do it very perfunctorily. The Collector of Gorakhpur instanced the case of a Tashildar of his district who reported the current rate of hire of carts as Rs. 1-5-0 per diem while the normal rate in the district was about Rs. 0-12-0 only! On enquiry it was found that the reason for the entry was that it had appeared continuously for eight years past and the officer did not feel justified in altering it. Care is also not always taken to see that the same grade of the same article is invariably quoted, and no comparison is made with statistics of the neighbouring districts. The quotations of retail prices of some important districts have not also been included. Thus, in Bengal, under rice, important districts like Bhagalpur, Pabna and Tippera have been omitted; in the United Provinces, under wheat, Etah, Fatehpur, Jalaun, Unao, Barabanki, etc., have been omitted; in the Punjab, under wheat, Montgomery, Kangra, etc., and in Madras, under ragi, Guntur, Chingleput, and Tinnevelly have been left out of account.

Defective description of commodities leads to unreliable statistics.

8. The unreliability of price quotations follows also from a defective description of the particular grade of the article for which price quotations are required. It should be remembered that it would be extremely difficult to define the different grades so specifically as to ensure the same quality being always quoted for. Prices collected at different places and for different years, and even prices collected on a given date and at a given place for apparently the same articles would not necessarily refer to the same grade or quality of it. Mr. Keatinge, Director of Agriculture, Bombay, said: "The different qualities of rice may at the same time and place vary 100 per cent. in value. 'Best rice' in Poona does not necessarily mean the same as 'best rice' in Bombay, nor does 'best rice' in Poona in December necessarily mean the same thing as 'best rice' in Poona in July; still less does 'second quality' rice in Poona in 1900 mean the same as 'second quality' rice in Poona in, say, 1904. Also an article like firewood may mean 'split firewood' or 'unsplit firewood.' Tur dall may be oiled or unoiled." In many cases prices reported for a district are impossible to reconcile with those of the neighbouring districts. This would lead one to believe that either the quality of the article cannot be the same in both cases or the quotations given are inaccurate.

Published retail prices not comparable with wholesale prices.

9. The retail prices quoted are not also comparable with the wholesale prices in many cases. From a statement furnished by the Director-General of Commercial Intelligence it was calculated that between 1897 and 1910 the retail prices

given in the 'Prices and Wages' were actually *lower* than the wholesale prices for husked rice for the same place on 90 occasions or 18 per cent. of the total quotations given under wholesale prices; for wheat on 105 occasions, *i.e.*, 22 per cent., for barley on 88 occasions, *i.e.*, 33 per cent., for jowar on 180 occasions, *i.e.*, 33 per cent., for bajra on 111 occasions or 30 per cent., for ragi or marua on 39 occasions, *i.e.*, 31 per cent., for maize in 105 cases, *i.e.*, 38 per cent., for gram in 106 cases, *i.e.*, 26 per cent., for arhar dall in 83 cases, *i.e.*, 20 per cent. These discrepancies may be due either to inaccuracies of the rates quoted or to differences in the grades of the articles for which quotations are given, or to the wholesale and retail quotations not being for the same market though shown as for the same district. The retail prices are invariably for the district headquarters, while the wholesale prices are for the large marts of the district which may or may not be situated at the headquarters. In the district of Aligarh, for example, the chief mart is at Hathras and not at Aligarh itself. In Dharwar, the chief mart is at Hubli; in Sylhet, at Ballagunj; in the Hoshangabad, at Harda; in Krishna, at Bezwada. In Vizagapatam, the chief mart is at the headquarters, but that for tobacco, sugar, bhusa and bran is at Vizianagram and Parvatipuram. In Godavery, Pittapuram is the chief mart for bhusa and bran only; in Tanjore, Negapatam is the chief mart for rice; in Coimbatore, Polachi for sugar, salt, bran and cotton seed; and so on.

Error in conversion of local measure to standard seer—another inaccuracy.

10. Another source of the inaccuracy of these statistics is the liability to error in converting the local measure of a district to the standard seer.

11. The chief defects of the existing price[1] quotations are thus general inaccuracy, lack of check and proper supervision, lack of uniformity of the different grades of the articles for which quotations are required, and lack of comparison of figures furnished from one district with those furnished from the neighbouring districts.

Necessity of collecting independent statistics.

12. It has, therefore, been necessary to collect statistics of prices for the entire period under enquiry from other sources with a view not only to supplement the information contained in the 'Prices and Wages,' but also to test the accuracy of what is already available there. In collecting these statistics I had to contend against very serious difficulties.

Sources from which statistics published with this report have been collected.

13. For wholesale prices at the ports, the best source available in India is the Prices Current of the Chambers of Commerce, and I have taken my quotations mostly from these. The chief difficulty has been the impossibility of getting continuous quotations for the same grade of an article, month by month, for so many as 23 years past. Where quotations were not available in the prices current, members of the Chambers, who had records for the particular article, supplied the quotations in many cases. In the case of Calcutta, quotations have also been obtained from the market reports published in the "Capital," and in the case of Bombay, from those of the "Times of India." The sources of information available for both wholesale and retail prices in the districts have been found to be of very varying reliability. Merchants, both European and Indian, have supplied statistics which have been invaluable in the present enquiry. Superintendents of central and district jails, the authorities of hospitals and lunatic asylums, Municipalities and District Boards, Court of Wards Estates and private gentlemen have furnished statements of both wholesale and retail prices. The rates obtained from these sources have varied widely in some cases, and it has been a task of great difficulty to obtain satisfactory averages. I have, however, invariably discarded all figures, the accuracy of which was open to question, and the rates published for each article have been arrived at with the greatest possible care. The prices of building materials have been obtained from Public Works officers as well as from contractors, but the rates furnished by the latter have sometimes been found to be *primâ facie* inaccurate and have therefore to be

taken with caution. For retail prices, the published reports of the municipal markets as well as the market reports published in newspapers, the price lists prepared by Bazaar Chaudhries for the use of district officers, and the accounts of private gentlemen have been used.

Method of compilation.

14. The methods of compilation of price statistics have been briefly as follows: For the ports prices of the commodities selected were compiled, month by month, from the "Prices Current" of the Chambers of Commerce, the "Capital," the "Times of India" and the quotations furnished by merchants and others. Every figure was then carefully weighed and yearly average prices calculated from them; in some cases, prices have been calculated from the *declared* values of exports and imports, the annual average having been obtained by dividing the total value by the total quantity. The retail prices were similarly compiled from the sources already mentioned. In the case of the other circles, annual average prices were first calculated for the different articles for each district. Statistics of prices, month by month, both wholesale and retail, were first examined and annual averages struck of the quotations obtained from each source: these annual averages were then posted in separate sheets for each article and a district average calculated. Quotations which appeared to be *primâ facie* absurd were discarded in all cases. The statistics furnished were generally rates per rupee and in many cases the rates given were in local measures, and these had to be converted into rates per standard maund of 82·286 lbs. or other standard weights according to which the prices are usually quoted. This part of the work was very laborious and troublesome. as in many districts, notably in the presidency of Madras, the local measure varied widely not only between different taluks of the same district, but also in the same taluk. in different years. When yearly average prices for each article, expressed in one common weight, had thus been obtained for all the districts in a circle, the annual average price for each commodity, wholesale and retail, for the circle was arrived at from the district figures.

Different methods of averaging—Median generally adopted.

15. Three forms of averaging are in common use in statistical enquiries, *viz.*, the arithmetic average, the median and the mode. The arithmetic average is tedious to calculate and the average obtained is a purely fictitious figure. In averaging price (and also wage) statistics the median has, therefore, been taken in most cases, especially where the number of quotations for the same article is large and the differences between several quotations vary within moderate limits relatively to the magnitude of the mean. The median may be defined as the middlemost figure or the arithmetic average of the two figures in the middle, when all the terms are arranged in an ascending or descending order of magnitude. The great advantage of the median over the arithmetic mean is that it is not violently disturbed by the fluctuations of extreme observations. The median is easy to handle and, therefore, from the point of view of brevity of calculation, is superior to the arithmetic mean. This point, however, is often liable to receive too much stress. The median is possible to determine with approximate accuracy even though the information is incomplete. It has not, however, been used in cases of discontinuous variations or where the number of quotations obtained were very small. As Mr. Yule has said: "The median is a form of average of most uncertain meaning in cases of strictly discontinuous variations, for it may be exceeded by 5, 10, 15, or 20 per cent. only of the observed values, instead of by 50 per cent.; its use in such cases is to be deprecated, and is perhaps best avoided in any case, whether the variation be continuous or discontinuous, in which a small series of observations has to be dealt with." The mode is the position of maximum density or, in other words, the figure round which the quotations cluster most densely. It is not suitable for averaging ordinary price quotations; but it is a very important value of the variable in regard to wage statistics, and although the calculation of the mode is very laborious it has been used to determine the average rate of wages prevailing in large industrial concerns.

APPENDIX C.

Construction of Index Numbers.

(*Chapter III, page 14, para. 24.*)

Index numbers—what they are.

1. The easiest and most scientific means usually employed by Economists and Statisticians to measure changes in the general price-level or the purchasing power of money is the method of Index Numbers. It is well known that prices of different commodities do not move together, and sometimes move even in opposite directions. To gauge the trend of the price-level of commodities in general, it is, therefore, necessary to combine the varying fluctuations in the prices of different commodities. Absolute prices do not lend themselves to any process of such combination, as an average of prices of different commodities, pig-iron and wheat for example, would be altogether meaningless. Recourse is, therefore, had to what are called Index Numbers. A period is selected as the standard and with the prices of this period comparisons are made of prices in other years. The prices of each commodity in the different years are expressed as percentages of the price of that commodity in the standard period. These percentages, being purely relative expressions reckoned on a common basis can be combined in a way impossible with actual prices. By averaging these percentages, expressions are obtained which represent the fluctuations of the general price-level, as compared with the standard period. These are called Index Numbers. They illustrate the general effect of price movements, and enable us to compare the relative significance of the changes in the prices of different commodities, and, as such, are indispensable whether one regards the phenomena of prices from the "quantity theory of money" or from the practical point of view of obtaining some measure of the change in the purchasing power of money between two periods of time.

2. The *Locus classicus* of Index Numbers is the report of a Committee of the British Association on "the best methods of ascertaining and measuring variations in the value of the Monetary standard, 1887," together with the elaborate notes of Professor Edgeworth which are appended to that report. The Committee subsequently issued reports on the same subject in 1888, 1889 and 1890.

Chief points in the construction of index numbers.

3. The following are the chief points in the construction of an Index Number :—

(1) The selection of a standard or basic period,

(2) The selection of commodities of which prices are to be taken,

(3) The collection of price quotations of the commodities selected and the calculation of the ratios of these prices to those of the basic period, and

(4) Averaging of these price ratios.

Selection of base—series of years preferred to a singl year.

4. (*I*) *Basic period.*—With regard to the period to be selected as the standard the first question is whether only one year or a number of years should be taken. Practice has varied in this matter. Jevons employed the year 1871, Falkner the year 1860 and the British Board of Trade originally the year 1871 and latterly the year 1900. Robertson's Index Number has the base 1873, as this was the year when silver began to fall consequent on the general demonetisation of the white metal by Germany and some other countries. The more usual course has however, been to select a longer period, from 5 to 10 years. The Economist uses the years 1845—1850, Sauerbeck the years 1867—1877, the United States Department of Labour and the Canadian Labour Department the years 1890-1899, Palgrave the years 1865—1869 and Soetber the years 1847—1850. Atkinson it may be noted, took, at first, 1871 as his base as Sauerbeck's gold prices index number was 100 in that year, but he subsequently altered his base to the years 1868—1876. The British Association recommended a ten-year period as, on the whole, the best.

Index numbers employed from two different standpoints.

5. The selection of the base depends to a large degree on the period covered by the statistics and the general object of the number. Index numbers are employed from two different standpoints. The first or theoretical point of view is closely bound up with the so-called "Quantity Theory of Money," the object being to ascertain the extent to which the quantity of gold or other monetary standard in circulation may affect the general purchasing power of money. Jevons, for instance, used them with the object of ascertaining the effect on prices of the great gold discoveries of 1848; Kral's index number was designed primarily to measure the effect of demonetisation of silver in Germany, and the year preceding that in which silver was demonetised, namely, 1871, was accordingly taken as the base. The second or practical point of view has for its object the obtaining of some measure of the change in the purchasing power of money between two periods of time irrespective of any theory as to the causes of the change. Thus, in one case there is a hypothesis as to the cause of the rise or fall of price-levels, and in the other there is no such hypothesis whatsoever. The chief essential for this latter class of index numbers is that the period should be representative of that under investigation. A single year, even if free from specially abnormal conditions, would hardly fulfil this condition, as certain commodities might be affected by special causes in that particular year so much as to affect the general price-level to a considerable extent. It seems, therefore, preferable in every way to take a series of more or less normal years instead of one year only as the base, as in the average the effect of special causes peculiar to particular years is likely to be eliminated.

A series of ten normal years not available in the period under enquiry.

6. It is not possible to find during the period embraced in this enquiry any series of ten years in which the level of prices was not violently interfered with by circumstances of an exceptional character. Thus, a deficient south-west monsoon in 1895 and the failure of the winter rains caused a serious deficiency in the crops in Bundelkhand, where by the end of 1896 more than a quarter million of persons were in receipt of relief. The rainfall of 1896 was in serious defect in the greater part of India and there was widespread distress almost throughout the whole country in 1896 and 1897, the daily average number in receipt of relief being 2,000,000, between October 1896 and September 1897. The year 1898 and the first half of 1899 were fairly satisfactory, but after this short interval the country was plunged by the deficient rainfall of 1899 into a worse famine than that of 1896-97. The most disastrous feature of this famine was that it extended over many regions which were just beginning to recover from the previous calamity. The deficiency of rainfall was the worst on record. The late Sir John Elliot, Meteorological Reporter to the Government of India, estimated that the drought of 1899 was "the greatest in extent and in intensity which India had experienced during the last 200 years." In January 1900, 3,500,000 persons were in receipt of relief and by the end of July the number had increased to 6,500,000. The monsoon of 1900 was weak at the commencement and the pressure of distress was not alleviated until a late date. The monsoon was, however, as a whole, favourable for the year and except in parts of Bombay and the Hyderabad State, the winter fall was unusually good in Upper India, Rajputana, the Central Provinces and Central India; but in the districts of Gujarat, the Deccan and the Karnatak in Bombay, through the early cessation of the monsoon in September and the absence of winter rains, the crops were deficient, and a considerable amount of distress prevailed during the first half of 1901. The setting-in of the monsoon was again delayed in 1901, and the rainfall of the year was deficient in parts of Central and Western India. As a result, the northern part of the Bombay Presidency with Baroda and several of the Bombay Native States suffered from famine for a third year in succession and parts of Rajputana, Central India and the Hissar district of the Punjab shared in the distress. In 1905 the spring

crops in the United Provinces suffered very severely from frost, the autumn crops from drought, and the spring crops of the following year from the same cause. In 1906-07, there were disastrous floods in North Behar and the crops were damaged. In 1907-08, the rainfall was deficient and badly distributed in considerable parts of India and there was widespread distress in several provinces, notably in Northern India. It would, therefore, be most inadvisable to select a period which would include such abnormal years.

7. The years 1903 to 1907 are not also typical of the period under investigation, as they were characterised by unprecedented trade activity and other unusual factors, such as, a large coinage of rupees. During these years, owing to an unparalleled rise in jute prices, jute products equalled in value nearly one-fourth of the total exports of merchandise. It was also a period of great inflation and many unusual factors were observable. These years ushered in a new period in the history of Indian price-levels, the predominant characteristic of which was the existence of famine prices without famine.

1890—1894 is the only five-yearly period free from abnormalities.

8. It is thus not possible to find within the period under investigation any consecutive period of ten years, some portion of which was not seriously affected by circumstances of an exceptional character. If we look for a period of five years instead of ten for our base, the most typical period appears to be the quinquennium 1890—1894, and this has been taken as the basic period for index numbers for this enquiry. This quinquennium includes normal years from an agricultural point of view, and agriculture in India is of supreme importance in view of the fact that the whole prosperity of the country is almost entirely dependent on agriculture. Prices were falling in 1890-91, but, on the whole, the country was in a state of full normal prosperity. Prices then commenced to rise, the bad harvests in Russia giving a great stimulus to the Indian export trade and causing Indian price-levels to rise. With better seasons prices fell again in 1894; on the whole, the period reflects normal conditions. The only event of any exceptional importance was the closing of the Indian Mints to the free coinage of silver in 1893, but such a monetary change seldom has any effect upon prices until some years afterwards and in the present case at any rate no specially perceptible effect on the general price-level was observable until several years after. The introduction of this important change in the currency system towards the end of this period is an additional reason for adopting the period 1890—1894 as the base for our index numbers, as it would enable us, if allowance be made for other causes, to gauge better the effect of that measure, the gold standard becoming really effective some years afterwards. The year 1898 or 1899 may commend itself to some for adoption as a base on the ground that it was then that the introduction of the gold standard in India became really effective, but, as mentioned above, any single year is not suitable as a base for an Indian index number. Moreover, both 1898 and 1899 were quite abnormal in regard to the quantity of rupees in circulation, and the price-level in those years, notwithstanding the severe shock of 1897 suddenly went down to the level of the early nineties. In other countries, however, there was generally a rise in the price-level in these years. There were probably some abnormal influences at work in those years in India. The two years also happen to fall in the middle of two periods of widespread famine in India and cannot, therefore, be combined with any subsequent or previous years. Another course would be to take the decennium 1890—1899, with the years 1896 and 1897 omitted, as quite abnormal. But it has always been the practice in the past, whenever a series of years was taken, to take a series of consecutive years, and it is not advisable to make a new departure in this respect. On the whole, the period 1890—1894 has been taken as the base as the most suitable; in this period, there were no particularly good or bad seasons which caused any violent fluctuation in the general price-level.

Selection of commodities.

9. (2) *The selection of commodities.* The selection of commodities depends upon the purpose for which the index number is to be used. If the index number is to show the variation in the purchasing power of money in respect to commodities generally, or whether the rise in prices is confined to any special class of commodities, such as foodgrains, raw materials or manufactured goods. it is obvious that foodgrains, raw materials and finished products should all be included in the index number. If the object is to represent the variation in the purchasing power of the income of a certain class or classes of people, then the commodities to be included should be those, which bulk most largely in their family budget. The ideal index number for India, as for other countries, should embrace not a single article only, as that used by Adam Smith in a notable chapter of the 'Wealth of Nations' (where he measures the alterations in the value of silver by the fluctuations in the price of corn), nor a few commodities like those used in the rough attempts at the construction of an index number by earlier writers, such as Bishop Fleetwood in 1707, nor even the larger number of the later authorities, but all articles, whatsoever, bought and sold in a country. This is an ideal far beyond statistical attainment. But the list of commodities must be as representative as possible; we must use the hypothesis which careful investigation of a practical nature has shown to be reasonable, that, while the results are admittedly partial, they may be safely treated as typical. It is important to remember that sample statistics may be quite as effective as complete statistics, but the chief difficulty is whether or not in a particular investigation the commodities selected as samples are representative. The material for calculation should not only be representative but also consistent with the supreme necessity of having reliable data. The more numerous the commodities, however, the more likely is it that some special cause affecting some one commodity in some one particular manner will be balanced by some other cause affecting another commodity in an opposite manner. It has sometimes been said that to attain this end the commodities should be independent of one another, and that the manufactured goods are scarcely independent of the raw material of which they are made. It is true that in the case of some well-known index numbers the prices of raw materials only, or at least of partly, rather than of wholly, manufactured goods, were used, but this was due mainly to lack of statistical data. It should be remembered that economic progress tends to diminish the cost of manufacture in comparison with the cost of obtaining the raw material. In view of this tendency, it would seem most probable that in times of rising prices an index number constructed almost exclusively on raw materials or on partly manufactured goods would exaggerate the rise and, in times of falling prices, would fail to indicate the full extent of the fall. All classes of articles, raw and manufactured, have accordingly been included, the choice being limited only by the possibility of obtaining continuous reliable quotations. For most of the circles the bulk of the articles are products of the soil, as must necessarily be the case in a country like India.

Collection of price statistics.

10. (3) *Collection of price quotations and calculation of price ratios.* In Chapter III of this Report, the collection of price statistics has already been discussed. The sources of the price quotations in brief are the published reports of Government, the prices current of the Chambers of Commerce, newspaper reports, the accounts of merchants, private gentlemen and large public institutions, such as hospitals, jails, municipalities, district boards, etc., the publications of Government showing the *declared* values and quantity of important articles of import or export and, in certain cases, the records in charge of the local authorities in each district. As far as possible, special care has been taken to see that prices of varying qualities of the same article were not taken and that the prices were taken at the same time and in the same way throughout the whole

period under investigation. It is a principle of statistical enquiry that prices, which are themselves not strictly correct, may be safely employed for purposes of comparison if it is possible to reckon with sufficient certainty on the uniform recurrence of the error. The quotations furnished by the large public institutions were used with considerable care in view of the fact that in some cases the prices quoted to public institutions do not always reflect current trade conditions, but like retail prices may be considerably affected by local or particular circumstances.

Weighting.

11. (4) *Averaging—question of weighting.* The next question for consideration is whether in combining the individual percentages, in order to calculate an average index number as a measure of the purchasing power of money, all the commodities, for which percentage rates have been calculated, should be considered as of the same importance or whether the individual percentages should be weighted according to the importance of the different commodities. It is usually urged that a system of averaging, which gives equal importance to all the commodities under consideration, would not present a correct view of the general price-level, and that a theoretically perfect index number should permit more important commodities to exercise a greater influence on the index numbers than the less important ones, as the purchasing power of money would be clearly much more affected by a rise in the price of an important article than by a similar fall in the price of an unimportant article. Different degrees of importance should, therefore, be given to different articles. Thus, if rice is, say, forty times as important as pepper, any variation in the price of rice should, theoretically, in framing index numbers, be accounted as of forty times the importance or weight of a like variation in the price of pepper. By weighting is thus meant the giving to each commodity, in the act of combining the percentages of prices to form index numbers, an importance equal to the importance of the commodity in the consumption or trade of the country. The several price ratios of any year are then multiplied by their respective weights, and the sum of these results divided by the total number of weights gives the index number for that year.

Determination of the relative importance of the different commodities.

Consumption method of weighting.

12. The first step to be taken in constructing a weighted index number is to determine the ratio of importance to be given to the several commodities included in the number. This is done in various ways. One method is to add statistics of the value of production and of imports in the case of each commodity and subtract from the sum, the value of exports; the result is recorded as the value of the amount consumed, consumption being held to include the manufacturing process. The price ratios of the several commodities are then weighted in proportion to the value of their consumption. This was the plan followed by the Board of Trade in 1903 in preparing their index numbers for each of the years 1871 to 1902 (since brought up to 1908) In these index numbers, the weight allotted to each article was based on the estimated value in millions sterling of the annual consumption of the article, the period selected for the estimate being, as far as possible, the years 1881 to 1890. In the case of articles in which the production of the United Kingdom forms an important factor, the total quantity produced was first estimated, and to this the imports of the same article from foreign countries were added, and from the sum exports were deducted. The remainder was valued at declared value rates. In all other cases, the declared values of the imports *less* the declared values of the re-exports were taken. The methods adopted for estimating the values were very rough in some cases, and the weights applied were admittedly only approximations, but it was held that they were quite sufficient for all practical purposes. In India, the statistics of production are extremely imperfect, and are in many cases impossible to estimate, and as regards imports and exports, though the statistics of foreign sea-borne trade are

reliable, those of internal trade between different parts of India, especially that carried by road and river, are very unreliable and are sometimes not available at all. If it had been decided to calculate weighted index numbers for each circle, it would have been necessary to ascertain, in the case of each, the consumption of the various commodities for which price quotations have been obtained, and even the roughest approximations would have hardly been possible.

Weighting on the basis of the values of commodities exchanged.

13. Another method is to calculate the value of all commodities exchanged at their actual prices and also at the prices of the basic period. The ratio of the former to the latter would be the index number. It is, of course, impossible to secure data for all kinds of exchanges. It is possible to include only articles which are standardised and important enough to be included, and statistics of which are available for many years. According to this method, then, the weight to be attached to each article is the value of the total quantity exchanged. It would be impossible to calculate even this for the several circles with any claims to accuracy. The main difference between the two systems described above is that in the one case, the weight attached to each commodity depends on its consumption in the country, while in the other it depends on the total trade of the country in that commodity irrespective of its consumption in the country itself. Thus, in India, raw jute and tea would have comparatively small weights according to the consumption method, but large weights would have to be given to them under the other method.

Budget method of weighting.

14. Another method of weighting, namely, the Budget method, is very interesting, although it is only of approximate accuracy. By this system, the weights appertaining to the several commodities are derived not from trade statistics but from observations of actual consumption. The expenditure of a large number of families is noted, and the data reduced to an average and regarded as representing the consumption of a typical family or individual. It will be seen at once that this system requires minute details of the articles consumed in a family. There are, however, many articles, such as pig-iron, raw cotton, and jute that cannot appear in the ordinary family budget. Even in the case of foodstuffs, it will often be found that the various items in family budgets do not correspond with those in a list of wholesale or retail prices. The application of a series of weights, obtained by the Budget method, to any list of wholesale or retail prices, accordingly requires a large amount of manipulation. In India, where the conditions between province and province and even between different parts of the same province, are so different, a *typical* family budget was most difficult and almost impossible to obtain. The consumption of luxuries, even of cotton manufactures, varies widely in different parts of India: in the black cotton soil tracts, the jute areas of the Bengal delta, and the wheat areas of the Punjab, the people are much better off and their standard of living cannot be compared with that of the people in the less productive areas: their consumption of luxuries, of foodgrains and other prime necessaries of life is much greater. Considerable parts of the country are now also industrially much more developed than other parts, and the standard of living in these parts also is higher than that in the ordinary agricultural areas which form the bulk of the country. It may be noted also that there are many articles which are produced in very large quantities in India and play an important part in the trade of the country, and consequently exercise a great influence on the general price-level. These articles are, nevertheless, consumed in India only to a very limited extent, and if weighted according to the Budget standard, the weights to be attached to them would be unduly small. Among other articles of this class are jute, raw cotton, tea and hides and skins. Moreover, had this method been extensively adopted, it would have been necessary to class together much of the family expenditure under miscellaneous, and it would have been necessary to give certain very arbitrary weights to some

of the commodities. The well-known experiment of the use of the family budget for weighting is that of Professor Falkner, the statistician of the Aldrich Prices Enquiry Committee of the United States, in the report of that body on Wholesale Prices (1893). He collected and analysed the budgets of 232 families. The method, however, cannot lay claim to more than approximate accuracy. As Professor Taussig says:

> "Rent is a large item in expenditure; but how much of this was for bricks, wood, glass, it is impossible to say. A considerable expenditure among the selected families had not been itemized at all, but simply set down as miscellaneous in the budgets. This was taken into account, nevertheless, in making up the weighted average, by assuming that one-half of this miscellaneous expenditure was for the direct purchase of commodities and by assuming further that these commodities, already assumed to be directly purchased, consisted of all the articles in the list which had not already found a place in the specifically itemized articles of the budget. The price of all these articles not traceable in the budget statements were yet given an importance in forming the general average, determined by the proportion which one-half of the miscellaneous expenditure had in the total expenditure of the family. These other articles, it may be noticed, included all the metals and implements whose prices were quoted, all the drugs and chemicals, all the lumber and building materials. Here, again, we have an artificial element of considerable importance, a supposition, and not a fact, in the distribution of expenditure and the consequent weighting of commodities, which shows how difficult it is to carry out into practice the budget principle of weighting commodities according to their importance." (Yale Review, Nov., 1893.)

15. About this method of weighting on the whole, the same authority says:—

> "If we wish to know whether any particular class in the community is better off or worse in consequence of changes in prices, we must make the enquiry with reference to the distribution of the expenditures of its members. More particularly, if you wish to know how those in the community who earn their bread by manual labour are affected by the movement of prices, we must inquire whether their money income, as distributed in one direction or another, yields them more at one time than at another. Proceeding from the social point of view, it might be possible, from a given set of figures, to conclude that the expenses of living for the working man had risen; while yet, from the simple monetary point of view, the same figures might make it clear that prices had fallen. Food, for example, forms a large part—40 per cent.—of the total expenditure of the working men's families whose budgets were chiefly used by Professor Falkner. A rise in the price of food, measured by its importance in their budget, might cause their expenses of living to rise. Among the well-to-do and leisured classes, however, a rise in the price of food would be of less importance, and might easily be overbalanced by a fall in the price of other things. The well-to-do class might be a comparatively large part of the population, and might expend two-thirds of the total income. Under such conditions, the method of total expenditure would rightly show that general prices, considered with reference to the importance of different commodities, had fallen. Yet the budget method would show that the expense of living of that class in the community, whose welfare most enlists the interest of the social philosopher, had not fallen, but risen."

Another method of weighting—taking larger or smaller number of quotations for the different classes of commodities.

16. Another rough system of weighting is to take quotations of a greater or smaller number of varieties of the same article or of the same article in different stages of manufacture, according to its importance. This method was followed by Sauerbeck in the construction of his index numbers.

Fixed and fluctuating weights —fixed weights.

17. There are two methods in which the systems of weighting described above may be applied in working out an index number according as the weights used are fixed or fluctuating. By the method of fixed weights, the relative importance of the several commodities at some particular date or period is determined, and the weights obtained are applied to the percentages from year to year. Thus, rice being found at a certain period to be, say, twenty times, and wheat, say, six times as important as tea, the price ratios for rice would be always multiplied by twenty, and those of wheat by six, in calculating the index number. Usually, in the case of the consumption method, the relative importance of the several commodities is determined according to the consumption in the year or period taken as the base. This is the plan pursued in the well-known report of Sir Robert Giffen on export and import prices published in 1885.

Fluctuating weights —first method.

18. In the method of fluctuating weights three plans are feasible. The first is the method made famous by the investigation of Mr. R. H. Inglis Palgrave and included in his memorandum to the Royal Commission on Depression of Trade in 1886. Palgrave's system was briefly to estimate according to the consumption method the relative importance of the several commodities included in the index number from year to year, and to apply these weights to the various percentages. The number would, therefore, reflect both the price and varying quantities consumed, of the several commodities. The chief objection to this is the immense labour entailed, and the consequent danger of error, an objection emphasised by the fact that under the most favourable circumstances many of the weights can be no more than approximations. A second objection to this method is that a mere change in the proportion of the articles consumed may involve a change in the number, though no change in prices may have occurred. But it may be argued that a change in the proportionate consumption of certain commodities, more expensive ones being substituted for less expensive ones, represents a change in the cost of normal living and should be reflected by a change in the index number. A third objection is that the calculation of a yearly consumption weight leaves out of account all question of stocks. It is extremely doubtful if any system of calculating weights based on a single year can be relied on to reflect consumption in that year. The elaborate calculations of Palgrave would, therefore, seem to be in the way of a mere refinement.

Fluctuating weights —second method.

19. The second plan is to regard the index number as a ratio between the quantities consumed in a current year at current prices and the same quantities at standard prices. Sauerbeck has used this method by way of testing his unweighted number. In the case of Sauerbeck's number, little change was shown between the weighted and the unweighted mean. For example, Sauerbeck found that the total value of the quantities of each article included in his number, consumed in 1897, was £464,200,000; the value of the same commodities at the price of 1866—1877 was £731,500,000. The proportionate price for 1897 was, therefore, 62·5. The average index number for 1897 was 62·0. This method, like that of Palgrave's, involves the calculating of a new series of weights each year.

Fluctuating weights —third method.

20. A third plan is that recommended by the British Association Committee, *viz.*, to employ a series of weights based on the average national expenditure on each article during the current year and a few years preceding, expressing the results in round numbers. As a still further variation on the above, Professor Marshall in an article in the *Contemporary Review* for March 1887 recommends that each year should be compared only with the preceding one and the average consumption for the two years be taken as the weight. This system has recently been adopted by the Board of Trade. On the subject generally of fixed *versus* fluctuating weights, Fountain says that the question of the continuance of the same series of weights depends largely upon the period under review. In a period

of rapid changes frequent revision of the weights would seem more necessary than in one of comparative stagnation.

Weighted index numbers theoretically preferable.

21. In view of the foregoing, it would seem theoretically advisable that a weighted index number should receive preference and that care should be taken in the choice of the particular method of weighting. The dictates of common sense and the abstract reasoning of the mathematician alike appear to support this view. Nevertheless, in proceeding to the actual problem, one is met on the threshold by the fact that, however strong in theory the argument in favour of a system of weighting appears, many of the most important considerations urged for it tend to disappear in practice. Not only has it been demonstrated by numerous experiments that differences in the results under the various systems of weighting are often slight, but also that the difference between any one of them and the system of not weighting at all is little. In connection with the British Association Report of 1888, Edgeworth calculated an index number for 1885 by seven different methods of weighting. They were 70, 70·6, 73, 69, 72, 72 and 69·5. In normal years, when nothing of an exceptional character occurs to affect to any great extent the general level of prices, the adoption of a scientific system of weighting is rather for the purpose of anticipating theoretical criticism than because of the practical difference in the result.

Unweighted index numbers equally serve all purposes.

22. The Committee of the British Association itself, while recommending a weighted mean as, on the whole, preferable, no less unequivocally express the view that for general purposes the unweighted mean might very well be considered to answer all requirements. The Committee said, "While an index number assigning relative weights to different articles so selected is an important means of arriving at a useful result, it cannot be said in the present state of the data on the subject to be an altogether indispensable means. The articles as to which records of price are obtainable being themselves only a portion of the whole, nearly as good a final result may apparently be arrived at by a selection without bias, according to no better principle than accessibility of record, as by careful attention to weighting. Practically, the Committee would recommend the use of a weighted index number of some kind, as, on the whole, commanding more confidence. A weighted index number in one respect is almost an unnecessary precaution to secure accuracy, though, on the whole, the Committee recommend it."

Unweighted index numbers adopted in this enquiry.

23. On the whole, I have, with the concurrence of the Government of India, adopted the system of unweighted index numbers. Firstly, because the best known index numbers and those of which most use has been made have not been weighted according to any one definite principle. Secondly, because the errors in price quotations obtainable in India would outweigh errors due to the index numbers being unweighted. Thirdly, because it is difficult to collect satisfactory data in India for determining the different weights, whatever method of weighting might be adopted. Fourthly, it is more important to have a large number of commodities quoted in the price table than to attempt accurate calculations of the proper weights to be attached to each article. There is a consensus among statisticians, as expressed by Bowley, that "the precision of an average increases with the number of like quantities averaged." It may, therefore, be concluded with some certainty that, in tables containing a large number of articles, the unweighted averages practically give results as near to accuracy as is obtainable. It should also be remembered that such tables of prices aim not at absolute but at relative results, and that, at the best, lists of prices can provide information only as to the trend of the movement of price levels relative to the basic period. It may also be urged that the unweighted mean undoubtedly possesses the merit of simplicity of preparation and of freedom from mysterious technicalities, which tend so strongly to command confidence. If the object aimed at is

to express the general tendency in prices underlying all variations, then the changes in the value of relatively unimportant articles may be as significant for the purpose as the changes in the value of the most important ones.

Some index numbers have been weighted and compared with unweighted numbers.

24. In order, however, to meet theoretical criticism, I have considered it advisable to test some of the unweighted index numbers, namely, those for India as a whole and for the seaports of Calcutta and Bombay, by comparing them with index numbers weighted according to the second method referred to above. In this method, different weights have been given to the different commodities according to the value of the total quantities of each entering into the trade of the country or the port concerned. The weights given to the different articles and the details of their calculation are given below. Owing to the absence of satisfactory data the calculations cannot be expected to give anything but very rough approximations.

The Calculation of Weights.

INDIA.

Detailed calculation of weights for India as a whole.

25. In calculating the weights in each quinquennium, the unit adopted represents a value of Rs. 25 crores. Errors in the estimates of the value of the several classes of commodities taken into account, to the extent of ten or even twelve crores cannot, therefore, materially affect the weights which have been adopted. The weights for the various classes have been arrived at as follows .—

Cereals.—The total exports of food-grains (cereals) in the period 1890-91 to 1894-95 was Rs. 63·89 crores. During this quinquennium the exports of cereals amounted to about 2·7 per cent of the total production. To obtain the value of the total production we have, therefore, to multiply the value of the exports by $\frac{100}{2\cdot7}$, but it should be remembered that it is only the better and more highly priced grain that is exported to any considerable extent, and thus the value so obtained would be an overstatement. It will be correct therefore to reduce this multiplier by, say, 15 per cent., and the value of exports multiplied by 32 (85 per cent. of $\frac{100}{2\cdot7}$) will give a rough estimate of the total value of the production of cereals in the quinquennium. A considerable part of the total produce is consumed by the producers themselves, and is not brought into the market : but it should be noted that even agriculturists in certain parts of the country sell their entire produce to the bania and then purchase or borrow the food they consume. The total quantity of food grains—Cereals—brought into the market thus consists of the portion which the producers re-purchase for their own consumption, the quantity consumed by non-producers and the quantity exported. It is very difficult—rather impossible—to ascertain the quantity thus brought into the market, but it may roughly be taken at one half of the total production. The value of the total quantity of cereals entering into the trade of the country would be the value of exports multiplied by $\frac{1}{2}$ of 32 (or 16) or 10,22,24 crores of rupees. To this we should add the value of the cereals imported during the period. The imports amounted to 5·27 crores of rupees, and, on the whole, the value of this class of commodities brought on the market may be taken at 10,27·51 crores, or say, roughly 1,100 crores of rupees.

Pulses.—The total exports of pulses in the quinquennium amounted to 2·14 crores of rupees. The percentage of the quantity of exports to production was ·4 for the quinquennium, or, in other words, production was 250 times the export. Applying the argument mentioned in the case of the cereals and making allowance for the quantity which is consumed by the producers and not brought to market, the total value of pulses produced is 2·14 crores multiplied by $\frac{85}{100}$ of $\frac{1}{2}$ of 250, or 217·38 crores of rupees. Adding imports of ·69 crores the total value of pulses marketed would amount to 218·07 or roughly 220 crores of rupees.

Sugar.—The exports of sugar were 3·30 crores and the imports 12·34 crores of rupees during the period 1890-91 to 1894-95. The proportion of exports to production in that quinquennium was 1·8 per cent. If then the value of the export be multiplied by $\frac{100}{1\cdot8}$ and the value of the imports added to the result, the value of the total quantity of sugar entering into the trade of the country would be 196, or roughly 200 crores of rupees.

Tea and Coffee.—The exports of tea and coffee were 41·33 crores (tea 31·68 and coffee 9·65), while the imports were 2·39 crores. The proportion of exports of tea to its production in the period 1890-94 was 97 per cent. The value of the production of tea and coffee would according to this proportion be 42·61 crores, and adding the imports we get the value of this class of commodities brought on the market as 45 crores.

Other articles of food.—The articles included in this group are:—Chillies, turmeric, ginger, tamarind, black pepper, betel-nut, ghee, salt, potatoes, onions, etc.

The export and import figures of only a small number of these articles can be obtained and the total production of the various articles and their value are unknown. It is, therefore, impossible to calculate even roughly the value of such commodities marketed. The only way is to take for this class a weight equal to 10 per cent. of the weight of the food-grains (cereals and pulses).

Oilseeds, oils, etc.—For the quinquennium in question the exports of oilseeds, oils, and oilcake were 64·89 crores, while the imports were 1·29 crores. The total production of oilseeds was 1·8 times the export in this period. The total value of the production of oilseeds, etc., would according to this proportion be 118·09 crores or approximately 120 crores. In this case no allowance has been made for consumption by producers as in the case of food-grains, because the general practice is for the cultivators to sell off almost the whole of the oilseeds grown by them and to purchase their oil from the market.

Jute.—Both raw and manufactured jute have not been taken into account in determining the weight to be attached to this commodity as that would give an undue importance to jute. The raw article would then have been taken twice, first as an unfinished raw material, and again as a finished product. The value of the raw material produced in the country was taken and the value of the manufactures *less* the value of the raw material used in them was added. This method was also followed by the British Board of Trade. The total production of raw jute in the quinquennium 1890-91 to 1894-95 was 1·9 times the export during that period, and thus by multiplying the export value Rs. 41·50 crores by 1·9 the value of the total production was obtained as 78·85 crores. The total export of jute manufactures was 18·04 crores of rupees and the value of the estimated quantity of raw material contained in them, after making an allowance of 5 per cent. for wastage, would be, at the export price, 12·08 crores of rupees; and assuming that 35 per cent. of the exports was consumed in the country, the total manufactures amounted to Rs. 24·35 crores and the value of the raw material in all manufactures to 16·30 crores. Whether this percentage is taken at 30 or 50, the weight to be given will not be affected. The difference to be added to the value of the total production of raw jute is, therefore, 8·05 crores of rupees. The total value to be assigned to jute, raw and manufactured, is thus 86·90 or roughly 90 crores of rupees.

Cotton (raw and manufactured).—The same arguments as in the case of jute may be applied to cotton, and it may be assumed that 45 per cent.* of the cotton goods manufactured in this country are exported. Raw cotton—exports were 61·86 crores, and imports 1·34 crores; cotton manufactures—exports 39·51 crores and imports 133·30 crores of rupees in value. In the period 1890-91 to 1894-95 it has been found that the total production of cotton in British India was 1·4 times the quantity exported. The value of the total production is accordingly 1·4 times the value of the exports, *i.e.*, 86·60 crores. As regards manufactures the total value was 39·51 multiplied by 2·2 (*i.e.* $\frac{100}{45}$) or 86·92 crores; the value of the estimated quantity of raw material

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* This may be roughly verified as follows :—

	Crores.
Total value of 7 years' manufactures during 1895-96 to 1899-00 less that used in woven goods at average declared value.	62·92
Value of woven goods manufactured during the same period at average declared value.	33·77
TOTAL .	96·69

During this period the exports amounted to 40·46 crores or 42 per cent. of the total production.

contained in these manufactures, after making allowance for wastage, and valuing it at the export price, would amount to 55·59 crores, leaving 31·33 crores as the cost of manufacture and this as well as the imports (amounting to 134·64 crores, including raw cotton) should be added to the total value of cotton produced in the country. The total value to be assigned to cotton is thus 252·57, or roughly 250 crores of rupees.

Silk.—The exports of raw silk were 2·87 crores, imports 4·67 crores, while the exports of silk manufactures were 1·57 crores and imports 5·08 crores. On the assumption that raw silk and silk goods manufactured in India are consumed and exported in equal quantities the total value of silk marketed may be calculated as follows:—Silk, raw, 2·87 +2·87+4·67=10·41 crores, silk manufactures, 1·57+1·57+5·08=8·22 crores, or say 19 crores, in all.

Wool.—Following the plan adopted in the case of silk and applying the same percentages, the value in the case of wool would be:—Wool, raw, 17 crores and woollen manufactures 10 crores, since the exports and imports of raw wool were 8·65 and ·63 crores and the exports and imports of woollen manufactures ·97 and 7·24 crores, respectively.

Hides and Skins.—The exports of hides and skins were 27·51 crores. Assuming 50 per cent. to be the proportion of hides and skins used in the country to the exports, the value of hides and skins marketed may be taken as 41·26, or roughly 40 crores.

Metals.—The exports of metals in the period was ·95 crores, while the imports were 25·74 crores. No appreciable quantity of metals was produced in the country in this quinquennium, and the value of metals marketed may be taken at 27, or roughly 25 crores.

Other raw and manufactured articles.—The exports of coal and coke were ·79 crores and the imports 6·05 crores. From figures of the total output and export of coal in the years 1890-94 it will be seen that the output of coal was 22·7 times the export. Multiplying, therefore, the export value by 22·7 and adding the import value, the value of coal that came on to the market was 23·98 crores.

The imports of petroleum were 11·42 crores, and this may be taken as the value of petroleum marketed. The exports of indigo were 19·35 crores, while the imports were insignificant. In the quinquennium 1890-91 to 1894-95, 68 per cent. of the indigo produced was exported. The value of the indigo produced may, therefore, be taken at 28·46 crores. The exports of shellac were 4·68 crores. Assuming 50 per cent. of the exports to be used up in the industry of the country, the value of shellac may be placed at 7 crores. The exports of saltpetre were 1·94 crores, and its value may be taken as equal to the exports only, say 2 crores. The exports of tobacco unmanufactured were 2·61 crores, while the imports were ·15 crores, the import of manufactured tobacco being ·74 crores. The total production of tobacco was about 24 times the exports in this quinquennium, and its value may be taken at 63 crores, and that of tobacco manufactured and unmanufactured at 64 or say roughly 60 crores. The exports of myrobalans were 1·92 crores. The total production of this article cannot be estimated, and it will not be very wrong to put its value at 5 crores. It is very difficult to correctly estimate the value of firewood used in the country but it may roughly be estimated at 10 crores in the five years 1890-94.

Building materials.—The same remark applies to this class of commodities and the value of this class has been estimated to be 75 crores.

26. The value of the different classes would then be :—

			Crores.
Food-grains, cereals			1,100
" pulses			220
Sugar			200
Tea and Coffee			45
Other articles of food $\frac{1}{10}$ of 1,320, say			140
Oilseeds, oils and oilcake			120
Textiles, Jute			90
" Cotton			250
Other textiles—			
Silk	19	crores, say	45
Wool	27		
Hides and Skins			40
Metals			25
Other raw and manufactured articles—			
Coal	23·98	say	150
Petroleum	11·42		
Indigo	28·46		
Shellac	7		
Saltpetre	2		
Tobacco leaf	60		
Firewood	10		
Building materials			75
TOTAL			2,500

27. Reducing the total value to 100 and taking the percentages of the several classes as their weights, the following weights are arrived at (a unit of weight representing a value of about 25 crores) :—

1.	Food-grains, cereals	44
2.	" pulses	9
3.	Sugar	8
4.	Tea and Coffee	2
5	Other articles of food	5
6.	Oilseeds, oils and oilcake	5
7.	Textiles, Jute	3
8.	" Cotton	10
9.	Other textiles	2
10.	Hides and Skins	2
11.	Metals	1
12.	Other raw and manufactured articles	6
13.	Building materials	3
		100

28. Similarly the weights for the other four periods will be :—

		1895-99.	1900-04.	1905-09.	1910-12.
1.	Food-grains, cereals	42	47	38	41
2.	" pulses	8	10	8	8
3.	Sugar	8	6	7	6
4.	Tea and Coffee	2	2	2	2
5.	Other articles of food	5	6	5	5
6.	Oilseeds, oils and oilcake	5	5	5	5
7.	Textiles, Jute	4	3	6	5
8.	" Cotton	10	9	12	12
9.	Other textiles	2	1	2	2
10.	Hides and Skins	3	2	3	3
11.	Metals	1	1	2	2
12.	Other raw and manufactured articles	7	5	6	5
13.	Building materials	3	3	4	4
		100	100	100	100

Mr. Atkinson's weights compared with those calculated above.

29. Mr. Atkinson's weights * and those calculated for India as a whole in this enquiry are shown below :—

—	Atkinson's weights.	PRICES ENQUIRY (FLUCTUATING) WEIGHTS.				
		1890-94.	1895-99.	1900-04.	1905-09.	1910-12.
Rice	30					
Wheat	5					
Jowar	3					
Ragi	2					
Bajra	2					
Maize	1					
Barley	1					
	44	44	42	47	38	41
Gram	2					
Other grains	5					
	7	9	8	10	8	8
Meat	2					
Potatoes	1					
Spices	1					
Ghee	1					
	5	5	5	6	5	5
Sugar	4	8	8	6	7	6
Oilseeds	4					
Oils	2					
	6	5	5	5	5	5
Hides and Skins	3. 3					
	6	2	3	2	3	3
Tea and Coffee	1. 1					
	2	2	2	2	2	2
Jute, raw	2					
„ manufactured	2					
	4	3	4	3	6	5
Cotton, raw	3					
„ manufactured	2					
	5	10	10	9	12	12
Silk	1, 1					
Wool	1					
	3	2	2	1	2	2
Indigo	2					
Opium	2					
Tobacco	2					
Saltpetre	1					
Cutch	1	Other raw and manufactured articles.				
Myrobalans	1					
Animal bones	1					
Coal	1					
Shellac	1					
	12	6	7	5	6	5
Metals	..	1	1	1	2	2
		Building materials.				
Timber	2	3	3	3	4	4
	100	100	100	100	100	100

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* *Vide* "Rupee prices in India," Journal Royal Statistical Society, March 1897 and September 1909.

30. From the above it will be seen that Mr. Atkinson's weights correspond substantially with those calculated above, with the exception of the weights to be applied to "cotton (manufactured and raw)" and "Sugar" to which Mr. Atkinson gave very small weights, while the weights adopted by him in the case of "Hides and Skins" and "other raw materials" were unduly large. There are special reasons for the large variations under these heads. In the case of cotton manufactures and sugar, Mr. Atkinson did not include the imports at all, while in the case of hides and skins he framed his estimate of the total value at 20 per cent. of the total estimated value of live stock. It was clearly a very rough method which led to very dubious results. In the case of "other raw materials," the difference arose from his taking a large number of articles of minor importance, to each of which he assigned the unit of weight. The weights calculated here have been determined independently and by methods different from those followed by Mr. Atkinson. The fact that they generally agree with those adopted by him, except in cases mentioned above, shows unmistakably that they can be depended upon to give sufficiently accurate results.

CALCUTTA.

Detailed calculation of weights for Calcutta.

31. The statistics of imports into and exports from Calcutta (by all routes) of the articles included in the price tables are imperfect, the total exports exceeding the total imports in the case of many articles, which is an impossibility. The inland trade figures included in this statement are not accurate, as a great deal of the goods traffic by boat and carts is not registered and the Rail-borne Trade figures are only approximations. With such statistics, it is impossible to calculate the consumption of the different commodities in Calcutta with any claim even to approximate correctness. The only alternative is to calculate the weights in the same way as in the case of all India. Here we need use either the imports or exports and not both, and one of these factors can in each case be worked upon, rough corrections being made where considered necessary. As explained later on, the unit of weight adopted represents about 4 crores worth of commodities. A difference of 1 or 2 crores in the estimated value would not, therefore, in any case substantially affect the results. The weights for the different classes of commodities have been worked out and explained in detail for the first quinquennium (1890-94) and for the other periods the weights have been calculated on the same method.

32. The imports of food-grains-cereals were 30·02 crores, while the export were 27·06 crores. The imports only have been taken,as the export figures will not include the quantity consumed in the city of Calcutta. Moreover, the quantity exported is a portion of that imported, and it will not be correct to take both exports and imports. Examining the two figures of imports and exports, it would appear that the import figure is understated, and this is possibly due to the fact that a quantity of rice coming to Calcutta by boats and carts has not been registered. It is also quite possible that the exports by sea (which form the bulk of the exports) were over-valued in the declarations submitted by exporters. The figure for imports has been raised and the trade in cereals has been taken at 32 crores.

The imports of food-grains-pulses were 5·32 crores and the exports were 2·71 crores. In this case the figure taken is 5 crores.

The imports of sugar were 5·00 crores, while the exports were 2·91 crores. In this case also the figure has been taken at 5 crores.

The imports of tea and coffee were 27·41 crores, while the exports were 30·62 crores. The import figure is ostensibly incorrect. The consumption of tea in Calcutta itself cannot amount to any appreciable amount in value and we may take the value of tea dealt with in Calcutta at 31 crores.

As regards "other articles of food," the export and import figures are available only for the following articles :—

	IMPORT. Crores.	EXPORT. Crores.
Salt	15·34	13·73
Spices	6·31	4·92
Ghee	2·85	1·42

If the import figures be taken, the value of these 3 commodities would be 24 crores. We may add another 4 crores for the other commodities included in this class, and put the total value of this class at 28 crores.

The imports of oilseeds, oils and oilcake were 27·03 crores and the exports 24·21 crores. For this class the value may be taken at 27 crores.

The imports of textiles—jute, raw—were 41·06 crores, while the exports were 37·87 crores. The figures may be taken at 39 crores for this class. It is not necessary to include the quantities consumed in the mills as they will be included under jute manufactures. The imports of jute manufactures were 3·37 crores and the exports 25·97 crores. The import figure does not evidently include the manufactures of the mills, lying outside but in the neighbourhood of Calcutta, though these manufactures have been recorded as exports from Calcutta. The value for determination of weights may be based on the export figure and allowing for consumption in Calcutta, it may be taken at 31 crores.

The imports of raw cotton were 7·26 crores and the exports 3·18 crores. The value may be taken approximately at 7 crores. The imports of cotton manufactures were 78·39 crores and the exports 80·34 crores. The value for this purpose may be taken roughly as 85 crores.

The imports of raw silk were 4·20 crores and the exports 3·71 crores. 4 crores may be taken as the value. The imports of silk manufactures were 2·09 crores and the exports 1·21 crores. On the basis of the import figures, the value may be taken at 2 crores. The imports of raw and manufactured wool were 4·17 crores and the exports 1·53 crores. The export figure is obviously too low, and on the basis of the imports this class may be valued at 4 crores.

The imports of hides and skins were 12·40 crores and the exports 13·83 crores. The import figure is too low. Allowing for some local consumption, the value may, on the basis of the export figures, be taken at 15 crores.

The imports of metals were 17·79 crores, while the exports were 11·69 crores. The value of this class may be taken at 18 crores.

Other raw and manufactured articles :—

	IMPORTS. Crores.	EXPORTS. Crores.
Coal and coke	5·31	1·13
Kerosene oil	7·00	2·54
Shellac	3·70	4·73
Indigo	13·04	13·91
Saltpetre	1·99	1·96
Tobacco	2·86	1·74
Myrobalans	·06	·10

The value of coal may be taken at 5 crores. The export figure for kerosene oil is unreliable and we may adopt the import value—7 crores. The import value of shellac is absurdly low and, on the export figures, the value may be taken at 5 crores. Similarly, for indigo the value may be taken at 14 crores. The value of saltpetre and tobacco leaf may be taken at 2 and 3 crores respectively. The value of firewood and myrobalans coming into Calcutta during the quinquennium cannot be expected to reach the figure which would give a unit of weight to it. It may, therefore, be neglected for our purposes.

Building materials.—As explained in the case of all India, it is impossible to estimate the value of this class of commodities, and it is necessary to assign an arbitrary value. It will not perhaps be too far wrong to take it at 10 crores.

33. Reducing the values of the different classes of commodities to fractions of a total of 100, the weights to be applied to the different classes of commodities for the period 1890-94 will be as follows. A unit of weight will then represent a value of about 4 crores.

Food grains—cereals	9
„ pulses	1
Sugar	1
Tea and Coffee	8
Other articles of food	7
Oilseeds, oils and oilcake	7
Textiles—jute (raw and manufactured)	18
„ cotton („ „ „)	25
Other textiles	3
Hides and Skins	4
Metals	5
Other raw and manufactured articles :—	
Coal and Coke	9
Kerosene Oil	
Shellac	
Indigo	
Saltpetre	
Tobacco leaf	
Firewood	
Building materials	3

34. Following the same principle as described above, the weights for the other 4 periods will be as follows :—

——	1895-99.	1900-04.	1905-09.	1910-12.
Food-grains—cereals	8	8	8	8
Food-grains—pulses	2	2	1	1
Sugar	2	2	3	5
Tea and Coffee	9	6	5	7
Other articles of food	7	7	5	6
Oilseeds, oils and oilcake	6	6	5	8
Textiles—jute	19	23	28	16
Textiles—cotton	20	19	18	21
Other textiles	3	2	1	2
Hides and Skins	5	5	6	7
Metals	6	5	7	7
Other raw and manufactured articles	10	11	9	8
Building materials	3	4	4	4

BOMBAY.

Weights for Bombay.

35. The weights to be applied to the different classes of commodities in Bombay for the several periods have been calculated according to the method adopted for Calcutta and they are :—

——	1890-94.	1895-99.	1900-04.	1905-09.	1910-12.
Food grains—cereals	10	11	10	6·5	6
Food grains—pulses	1	2	1	1·5	1
Sugar	4	4	4	3·5	3·5
Tea and Coffee	1	1	1	·5	·5
Other articles of food	1	3	3	3·5	3·5
Oilseeds, oils and oilcake	13	11	11	9	12
Textiles—Jute	1	1	1	1·5	1
Textiles—Cotton	49	48	49	54	53
Other Textiles	2	2	2	2	2
Hides and Skins	1	2	2	2	1·5
Metals	7	7	8	9	8·5
Other raw and manufactured articles	4	5	4	3·5	3·5
Building materials	3	3	4	3·5	4
	100	100	100	100	100

Calculation of weighted index numbers.

36. By these weights the index numbers of the various groups of commodities for India, Calcutta and Bombay, have been multiplied and their sum divided by 100. The results, which are the weighted index numbers, and their smoothed averages are compared in the following table and Chart No. 24.

Index numbers unweighted and weighted.

Years.	INDIA.				CALCUTTA.		BOMBAY.	
	UNWEIGHTED.		WEIGHTED.		Unweighted Rupee	Weighted Rupee.	Unweighted Rupee.	Weighted Rupee.
	Gold.	Rupee.	Gold.	Rupee.				
1890	113	97	112	96	97	96	100	101
1891	106	98	106	98	97	96	98	97
1892	100	103	102	105	100	101	100	98
1893	96	102	97	103	103	103	102	104
1894	85	100	83	98	103	104	100	100
1895	89	101	87	99	103	103	102	101
1896	99	106	100	107	103	102	103	103
1897	120	121	125	126	111	101	106	107
1898	109	106	107	104	102	95	102	99
1899	108	104	104	100	101	98	102	97
1900	126	122	128	124	114	109	114	112
1901	120	116	117	113	112	107	108	106
1902	115	111	111	107	107	103	107	105
1903	111	107	107	103	106	105	104	103
1904	110	106	106	102	107	107	106	110
1905	120	116	118	114	115	117	110	112
1906	134	129	133	128	129	135	119	119
1907	138	133	138	133	134	136	123	119
1908	147	143	148	144	134	124	123	123
1909	138	133	137	132	124	118	119	119
1910	137	132	133	128	125	125	128	132
1911	139	134	134	129	126	128	129	134
1912	147	141	146	140	134	136	133	138

Nine-yearly average Index numbers unweighted and weighted.

Years.	INDIA.				CALCUTTA.		BOMBAY.	
	UNWEIGHTED.		WEIGHTED.		Un-weighted Rupee.	Weighted Rupee.	Un-weighted Rupee.	Weighted Rupee.
	Gold.	Rupee.	Gold.	Rupee.				
1890-98	102	104	102	104	102	100	101	101
1891-99	101	105	101	104	103	100	102	101
1892-1900	104	107	104	107	104	102	103	102
1893-01	106	109	105	108	106	102	104	103
1894-02	108	110	107	109	106	102	105	103
1895-03	111	110	110	109	107	103	105	104
1896-04	113	111	112	110	107	103	106	105
1897-05	115	112	114	110	108	105	107	106
1898-06	117	113	115	111	110	108	108	107
1899-07	120	116	118	114	114	113	110	109
1900-08	125	120	123	119	118	116	113	112
1901-09	126	122	124	120	119	117	113	113
1902-10	128	123	126	121	120	119	116	116
1903-11	130	126	128	124	122	122	118	119
1904-12	134	130	133	128	125	125	121	122

No appreciable difference between weighted and unweighted index numbers.

37. It will be seen from the above table and Chart No. 24 that though in the index numbers for individual years there are slight differences between the weighted and unweighted averages, but in the smoothed averages these differences almost disappear, and the trend of the price level as represented by either set of figures is the same. For the purpose of this enquiry, therefore, any one of these two averages would suit, and for the sake of simplicity and facility of calculation, and for reasons explained elsewhere, unweighted averages have been adopted in this report.

APPENDIX D.

The Compilation of Agricultural Statistics.

(Chapter III, pages 15 and 16, para 31.)

(*i*) *Area and outturn.*

Sources of statistics and their reliability.

1. The only continuous record of the acreage under cultivation of the different crops in the different districts is contained in the annual crop and season reports of the Provincial Governments and Volume I of the Agricultural Statistics published by the Commercial Intelligence Department. Both are compiled from the same materials. As already explained in Chapter III these statistics are of very varying value in the different provinces. In Bengal and in the permanently settled parts of Assam except, perhaps, in cadastrally surveyed areas, the area figures which are supplied to the thana, are mere guesses of the village chowkidar (or village policeman). The thana forwards these statistics to the subdivisional or the district headquarters. In the Season and Crop Report for Eastern Bengal and Assam for 1907-08, the Director says: "The provincial estimates of cropped areas are based on reports from District Officers which necessarily vary greatly in reliability according to the amount of personal interest taken in the subject by the District Officer, and to the degree of importance which is attached to the reports. The estimates of area under jute, for example, are far more reliable than those of area under pulses or millets." Mr. S. G. Hart in speaking of the forecasts of area in Eastern Bengal and Assam said :--

Eastern Bengal and Assam.

Mr. S. G. Hart on forecasts of area.

"They are necessarily based on reports from District Officers, which, in most cases, are, in the absence of a subordinate revenue agency to measure the actual areas under various crops, founded on general ideas which, though possibly representing fairly accurately the conditions in one locality, are by no means true for the district as a whole. Unfavourable conditions subsequent to the issue of the forecast also affect the final outturn. The forecast of the winter crop of 1905, issued on the 12th December of that year, estimated the total outturn of the crop in Eastern Bengal at 92 per cent of the normal. But in Backarganj where there are 1,300,000 acres under this crop, the outturn was finally reported to be only 50 per cent. of the normal against 94 per cent. as estimated at the time of this forecast and 97 per cent. in the previous year. This fact alone reduced the outturn of Eastern Bengal to 85 per cent., and subsequent enquiries showed that in other districts also the final outturn was much less than the estimate, and it is probable that the total rice crop of the Province in the winter of 1905-06 did not exceed 66 per cent., while in the previous year it had been 97 per cent. of the normal."

United Provinces of Agra and Oudh.

2. In areas, however, possessing a subordinate revenue staff, the statistics relating to cultivation are much more reliable. In the United Provinces except in the permanently settled areas, and the districts of Almora, Garhwal, and the hill tracts of Naini Tal and Mirzapur (where there is no agency for the collection of statistics), in the Punjab and Central Provinces, the patwaris enter in their notebooks the areas under different crops and these are checked by the revenue inspectors. The figures supplied by the patwaris are also checked on the spot by the other officers of the land record staff, by the tahsildars and gazetted officers. In Bombay the kulkarni goes into the fields which have already been surveyed and marked off by immutable boundaries carefully marked out upon the ground and notes down the acreage of each crop. His work is supervised by a circle inspector who is responsible for thirty-five or forty villages, *i.e.*, he supervises the work of twenty or thirty kulkarnis. The circle inspector is under the supervision of the

Deputy Director of Agriculture, and also of the mamlatdar. The circle inspector's duties are to check on the field the areas in the kulkarni's note book. The Collector, or his assistant or deputy, makes casual checks of these crop areas and inspections by subordinates. In Madras, cultivation accounts are submitted primarily by village accountants and compilations are made from them first by Revenue Inspectors for their firkas, and then by Tahsildars for their talukas. From the taluka returns the district totals are calculated. In ryotwari villages the annual areas under cultivation for the different crops are fairly accurate as they are based upon the monthly records of each field made by the village accountant or karnam.

Before 1896 returns of area were not made in all Provinces in a uniform system.

3. The statistics of area published by the Government of India have been prescribed since 1866 for general appendices to the annual general administration reports. In 1884 the tables were modified and they were again rearranged in 1887-88. In 1891 the tables were again revised and since then no important changes have been made. In the case of land from which more than one crop is taken, the area, which is actually cultivated, is taken into account, no matter whether the area is a double-cropped one or not. The total number of acres from which more than one crop is taken is recorded so that the net area cropped is always known. The crop statistics in every province refer to the year closing with the harvesting of the spring (rabi) crop. The Government of India decided in 1896 that the areas under crops should be the areas actually sown, whether the crop matures or not, except in the case of fields which, owing to the failure of the first sowings, have been sown with other crops. Thus one uniform method was adopted in that year except for the Punjab and North-West Frontier Provinces, as explained later on. In cases where the first sowing failed, the areas first sown are omitted. Where two or more crops are grown on the same field, the village accountant estimates the area under each crop and notes the area in his return. The estimate, if not made by the village accountant, is subsequently worked out from formulæ prescribed by the local Governments.

Area under new crops included in 1891.

4. In the area compilations of 1891 the following items were added to those published previously, *viz.*, condiments and spices, other dyes, Indian hemp, other drugs, fodder crops, orchards and garden produce. Since 1899-1900 " rape and mustard " have been separated from the head " other oilseeds." We have, therefore, in recent years, areas of the following crops :—Food grains (rice, wheat, barley, jawar, bajra, ragi, maize, gram and other food grains), oilseeds (linseed, til, rape and mustard, others), condiments, sugar (sugarcane, others), fibres (cotton, jute, others), dyes (indigo and others), drugs and narcotics (opium, coffee, tea, tobacco, cinchona, Indian hemp, others), fodder crops, orchards and garden produce and miscellaneous crops.

Variation in figures due to revision of faulty estimates.

5. In several instances it was found that the variation in the areas was due to the correction of faulty estimates. This was especially the case in Bengal where the statistics, as already mentioned, are not based upon accurate surveys or village papers. In Chittagong and Backergunge, however, surveys have been carried out and the areas have been altered with reference to these surveys. In the permanently settled tracts, the areas have sometimes been considerably altered as, for example, the rice area of Tippera in 1900. The reason given for the alteration was that in that year the Director of Agriculture ordered a revision of areas. In Ranchi, the total acreage between 1893-94 and 1898-99 varied from 32 to 30 lakhs. The figures were then gradually reduced until they reached 10 lakhs in 1902-03. Since then they have been raised again, the total acreage fluctuating between 14 and 15 lakhs, but the Survey and Settlement which has just been completed gives the total acreage as 23 lakhs, which is certainly more correct. Such faulty estimates are confined chiefly to permanently settled tracts and to hill districts such as Garhwal where there is no means of

collecting reliable statistics. The areas under "Tea" and "Coffee", in certain instances, differ from those in special reports on Tea and Coffee production. "The principal reason", we are told, "is that the special reports are prepared from returns received from managers and owners of estates; and these returns, especially in Southern India, are inaccurate and defective. Minor discrepancies in the case of tea are also due to the fact that the figures in the agricultural statistics deal with the agricultural year; while those in the special report deal with the calendar year."

Details of difference in the compilation of areas under crops —United Provinces.

6. It remains in this connection to explain a few details as to the differences in the compilation of areas under crops in some provinces. In the United Provinces, the village accountant assigns, in the case of unimportant mixed crops for which no heading is provided in the provincial crop statements, the area sown to the principal crop. Up to 1893-94 important mixed crops such as wheat and barley, wheat and gram, barley and gram, jawar and arhar, bajra and arhar, and cotton and arhar, for which separate heads are provided in the crop statements, were classed as "other food grains including pulses"; from 1894-95 these areas have been distributed in accordance with prescribed formulæ: where food grains and oilseeds were mixed, the whole of the area is shown under food grains. The areas under oilseeds refer to areas sown exclusively with oilseeds. Oilseeds are sometimes grown with wheat, barley, gram, etc., and if the areas occupied by the scattered plants were added up, it was estimated that for 1909-10 the acreage would roughly be 597,000 acres of linseed, 900,000 acres of sesamum and 2,269,000 acres of rapeseed or a total of 3,766,000 acres.

Punjab and North-West Frontier Provinces.

7. The statistics published show the total cropped area in the Punjab and the North-West Frontier Province for the whole period, 1890-1911, and not as in the case of the other provinces, the area sown with each crop: statistics for areas of the latter category are available for these two provinces only from 1906-07. Previous to that year the area of each crop was reduced to a conventional standard called the normal. The published crop areas were called "matured" areas, and were obtained by multiplying the actual areas sown by a fraction representing the proportion of the crop harvested to a normal crop. The total area published was not, therefore, the sum of the areas sown under each crop. The differences between the total area sown and the total area matured amounted in 1905-06 to 6,383,136 and 410,722 acres in the Punjab and the North-West Frontier Province respectively. To effect a comparison between the acreage under the several crops in the years prior to 1906-07 and subsequent years, it has therefore been necessary to reduce the sown areas of the later years to matured areas as sown areas for each crop for the earlier years are not available. Figures of matured areas under each crop for all the districts in the Punjab and North-West Frontier Province for the years 1906-07 to 1911-12 were kindly furnished by the Provincial authorities, and for the two circles, Punjab East and Punjab West, comprising the two provinces, matured areas have been shown in the agricultural statistics published with this report for the entire period under investigation, while in all other circles sown areas have been shown. The difference between the sown and the matured areas in each year has, however, been added under the head "failed area" to the matured areas, to bring out the gross area sown. In Madras, under fodder crops are shown only the areas sown with grass and crops used solely for fodder. Lands left waste for grazing and on which grass grows spontaneously have not been included.

Madras Presidency.

Other statistics compiled.

8. Statistics have also been compiled to show the total cropped area, the double-cropped area, the net cropped area, the area irrigated and that unirrigated, fallows and the percentage of fallows to the total net cropped area and fallows. It is to be noted that the area given in the village papers of the United Provinces,

the Central Provinces, Madras, the Punjab and the North-West Frontier, differs from the area ascertained by professional survey, because the area by village papers represents the added total of field and village areas, while the survey area of a district or province is calculated *en bloc*. The inclusion or exclusion, moreover, of areas covered by water, buildings, roads, and railroads is not uniform in the two sets of returns.

Figures under certain crops not available for earlier years.

9. For the earlier years, in some provinces, figures under certain crops were not available and those under two or more crops were lumped together, necessitating their splitting up according to their proportion in later years. Incongruous figures had also been reported for some districts in some years which had to be revised in the light of subsequent and earlier figures and gaps, where they existed, had to be filled in.

Area compilations for circles.

10. These area statistics are published for each circle, the totals for the circle having been calculated from the figures of those districts which make up the circle.

Compilation of outturn of crops for circles how made.

11. The circle outturn of the more important crops has been worked out for each year from the following equation :—

Circle outturn = circle area × circle normal yield × circle percentage of the year's crop to normal.

The circle normal yield was the weighted average of the normal yields of the crop for the districts comprised in it, the normal yields being those published by the Agricultural Departments. The circle percentage of the year's crop to normal was also the weighted mean of the percentages of the year's crop to normal for all districts comprised in that circle. In using these percentages, however, we must remember that they are defective as absolute statements owing to the tendency of the estimators not to go far enough at either end of the scale : bad harvests are overstated just as much as good harvests are understated. The normal yields which have been utilised in the present enquiry are those of most recent date, published as an Appendix to the Agricultural Statistics of India, Volume I. As time goes on, the returns showing the average yield in pounds per acre of the principal cultivated crops tend to become more accurate, and it is for this reason that the most recent figures have been adopted. The figures are not actual averages of produce for a number of years, but are standards of the outturn which may be expected in a year with average agricultural conditions.

Normal yields of crops.

12. These standards are constantly corrected according to crop cutting experiments made every year. It is prescribed that the fields on which the experiments are to be made should be carefully selected as typical of the area under examination and on which the crop is of an average quality. The work is expected to be done under the direct supervision of a responsible officer though accurately on a small scale. The method by which these results are utilised to correct the standards is briefly as follows : —All statistics which are *primâ facie* untrustworthy are rejected ; the remainder are then examined in detail to see if the crops were taken in the normal course of agriculture, if the fields on which the crop is grown are typical, and if the local conditions are not abnormal. The figures for every quinquennium are examined and compared with the standards obtaining in previous years ; and before a change is made in the standards of any crop, the results in the experimenting district are carefully scrutinised. The standards of 1892 were in many cases calculated in maunds, and, when reduced to pounds, the results were misleading. In recent years, these standards for land of average quality, both irrigated and unirrigated, have been altered. The general trend of the changes is in an upward direction. The yield of maize has increased from 950 to 1,050 lbs., of sugarcane from 2,500 to 2,600 lbs., and of cotton from 150 to 160 lbs. in the United Provinces. In the Punjab, the average outturn

of irrigated rice has increased from 1,126 to 1,183 lbs., of irrigated wheat from 935 to 994 lbs., and of irrigated and unirrigated barley from 903 to 1,053 lbs. and from 520 to 652 lbs. respectively. Sugarcane in Madras has been raised from 5,127 to 6,089 lbs. In some cases the standards have decreased: in Burma (Lower), the average outturn of husked rice has decreased from 1,200 to 1,176 lbs.; in the Punjab, the outturn of irrigated sugarcane has decreased from 1,727 to 1,607 lbs., and of unirrigated from 1,390 to 1,288 lbs. The estimates for these crops were evidently pitched too high in previous years. Crop-cutting experiments are not uniformly carried out in all Provinces. In the Bombay Presidency these experiments have been discontinued since September 1909.

Statistics of Cattle.

Cattle statistics.

13. Statistics of agricultural stock have been collected in various provinces from time to time and the figures have been published in Volume I of the "Agricultural Statistics." The methods of compilation, however, have not been identical and the statistics for the earlier years of this enquiry are of doubtful value. In some provinces the figures include, while in others they exclude, animals in towns, cities and cantonments. During the last 8 or 10 years, specially from 1905, the accuracy of the figures has been greatly improved.

Procedure in different provinces.

14. In Assam a census of agricultural stock is taken every 5 years but it is not taken simultaneously in the different districts. The figures published in agricultural statistics for Assam do not also include those for the permanently settled tracts in Goalpara, for tracts other than the Jainti Parganas in Sylhet and for the Hill tracts. In Bengal, statistics of the live-stock are exceedingly scarce and, even when available, are not very reliable. The methods of their calculation have, however, greatly improved in recent years, especially in tracts where surveys are being made or record of rights prepared. The figures are not collected every year but only when the tracts are under survey. From 1908-09 complete estimates have been made and included in the agricultural statistics. Last year, however, the Director of Agriculture made an independent enquiry, but the figures obtained by him did not ostensibly agree with those which were collected in the ordinary way and published in the "Agricultural Statistics." In the United Provinces, until 1897-98, statistics of agricultural stock were collected by an annual census made by the Patwaris at the time of recording the spring crops. A rough record for each tenant was made by the Patwaris and examined from time to time by the Kanungoes and the resultant totals were preserved in the Patwari's papers These statistics are, however, now collected once every 5 years when a census is taken in each district. The latest census was taken in 1908-09 in all districts except Almora and Garhwal, for which the figures of the previous census of 1898-99 were retained. In the Punjab, until 1897-98, the returns were furnished by Patwaris who counted cattle in a village every 4th year when a village Jamabandi was prepared. The enumeration was, however, not made at any given time but only when the Patwaris found time for it between April and August. This was very unsatisfactory and the system was replaced by a census for the whole province to be taken every 5th year, in the first week of February. The last census was taken in 1909. In the Central Provinces, the figures are collected annually between the first of January and the 15th of March by the Patwaris for each village within the areas in their charge. The total figure is recorded by Kanungoes in the Tahsil in a village register, from which returns for the whole district are prepared. All animals which belong to residents of the village are included while those which are temporarily in the village for grazing or other purposes, and do not belong to residents, are excluded. Stocks in cities, large towns and cantonments have been included from 1896-97 and those in forest villages from 1907-08. In Bombay, until 1901-02, the figures were collected annually by village officers by a house-

to-house enquiry in June. In that year it was decided to take a census quinquennially, and the last such census was taken in 1909-10. All animals belonging to a family are entered against the name of the head of the family, even though the animals might at the time be absent from the village. Animals belonging to other villages are excluded and those belonging to a roving grazer who has no permanent residence are noted, but are not included in the village records. These are tested periodically by Circle Inspectors. In Madras until 1898-99 a census of cattle in ryotwari villages was taken annually. In that year it was decided to take a quinquennial census and the last such census was taken in 1909-10. In some of those villages, notably in Inam villages, where there is no suitable agency for the work, Collectors obtained the information as best as they could. Previous to 1909-10 no information was collected regarding live-stock in permanently settled or zemindary estates and in towns and cantonments that did not form part of any revenue village. The figures for Madras and Bombay are, it may be noted, considered to be more accurate than those of other provinces, owing to the earlier introduction in these provinces of the system of collecting cattle statistics. In collecting the statistics for this report, figures for only those districts have been included for which statistics are available continuously or for successive periods.

APPENDIX E.

Statistics of Rainfall.

(Chapter III, page 17, para. 41.)

Kharif and Rabi crops and the rainfall on which they depend.

1. There are two main harvests in India—the kharif and the rabi. The sowing of the autumn or kharif crops begins usually in June with the burst of the south-west monsoon and extends to July. Between September and December the various kharif crops are reaped. The spring or rabi crops, which require less rain than the kharif, are sown in October and November, and ripen in March and April. If the south-west monsoon fails in the earlier months, considerable quantities of land, which would otherwise have been taken up by the kharif, are taken up by the rabi provided the September rains and the north-east monsoon prove satisfactory. It is, therefore, necessary to differentiate between the rainfalls upon which the two different crops depend. The important factor to bear in mind is that seasonable rather than total rainfall is what influences the prosperity of the peasant, and some parts of India suffer as often from an excess as from a deficiency of rainfall, though not as severely.

The Monsoon.

2. The south-west monsoon, the effect of which extends throughout the whole of India, including Burma, falls between June and October, while the north-east monsoon, which is really the south-west monsoon in retreat, falls between October and December and gives the south-east of India, consisting chiefly of the Tamil-speaking districts of Madras, its heaviest rainfall. It also extends to the southern parts of the Hyderabad State and as far north as the Southern Maratha country in Bombay. The Central Provinces, Berar and the north of Hyderabad also get from this monsoon light showers which are highly beneficial to the rabi crops of wheat, linseed and gram on the black soil of these parts. Northern India gets its chief supply from the south-west monsoon, but the occasional light showers in the winter make the weather well suited for the rabi. The extreme north-western areas and the Punjab get about half their average rainfall in the winter. The only parts that get any appreciable rainfall during the hot weather, *i.e.*, from March to May, are Bengal, Assam and Burma.

Total rainfall in each circle how compiled.

3. The total rainfall for each circle has been calculated by taking year by year the total number of inches of rainfall for all the registering stations in the circle and dividing this by the number of registering stations. In some places, *e.g.*, Cherapunji, the Khasi and Jaintia hills of Assam, etc., the rainfall is exceptionally heavy. These stations have, therefore, been excluded in calculating the averages as their inclusion would have vitiated them and they would not then have been proper indices of the fluctuations in the rainfall.

Variations in rainfall from month to month.

4. The amount and general distribution of rainfall varies considerably from month to month. For the whole of India, the mean rainfall in May is 2·60 inches; in June 7·10 inches; in July 11·25 inches; in August 9·52 inches; in September 6·78 inches; and in October 3·15 inches. These figures indicate that the rainfall is unevenly distributed among the several months. The monsoon also does not advance simultaneously in the different provinces. It begins on the Malabar coast about June 3rd; on the Bombay coast about June 5th; in the Central Provinces about June 10th; in Bengal and Behar about June 15th: in the United Provinces between the 20th and 25th; and in the Punjab about June 30th. The rainfall even in its normal incidence falls into short periods of alternate light and pulses, these pulses following roughly, on the average, every fortnight. It is undoubted that these pulses are irregular in their incidence, but it is roughly correct to say that, in Western India at any rate, the periods marked by heavy

falls are timed to occur about the dates, 17th June, 12th July and 10th and 31st August, these major pulses diminishing in their intensity after the middle of July. Minor pulses usually occur about 5th June, 1st July, 10th and 25th September and 20th October and during the intermediate periods the fall is lighter.

Success of crops depends on the distribution of the rainfall.

5. The success or failure of the crops depends more on the distribution of the rainfall than on the aggregate fall during any period. Dr. H. H. Mann, Principal of the Agricultural College, Poona, pointed out how very different the outturn of the kharif and rabi may be in two years when the total rainfall may not differ substantially. He showed the importance of this factor by analysing the rainfall at Bárámati in the Nira Valley of the Poona District. In the years 1904 and 1905 the total rainfall was almost the same, but the distribution was entirely different and the harvests dissimilar.

Rainfall at Bárámati, 1901-1908.

	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
January	1·77	·90	..	..	..	2·19	..	..
February	..	..	..	..	·15	..	·18	..
March	·45	..	..	..	..	..	·15	·39
April	1·54	..	..	..	·03	..	3·15	·04
May	·32	·40	2·22	·40	1·34	·38	..	..
June	3·29	2·67	3·56	1·56	2·89	4·86	4·39	2·88
July	1·33	1·05	3·31	·45	1·26	1·09	2·46	1·50
August	2·24	·66	1·35	·07	1·95	9·49	1·45	1·46
September	5·54	5·75	7·09	5·87	·29	5·05	5·24	8·89
October	·65	3·91	1·79	3·03	4·12	1·02	..	1·37
November	·24	·89	..	..	·41	·49	..	..
December	..	3·15	..	..	..	·13	..	..
TOTAL	17·37	19·38	19·32	12·18	12·44	24·70	17·02	16·53

Grouping of months into seasons.

6. To bring into prominence this special characteristic of rainfall is extremely difficult. Statistics of the fall every week or even fortnightly and their comparison with the normal would probably show how far it was seasonable, but it has not been found possible to make such a compilation. Tables are published showing the total monthly fall in each circle year by year. The months have also been grouped into periods of heavy, moderate, light or no rainfall, and the total rainfall in each of these periods in the different circles is also published. The grouping of the months depends largely on the locality. As a general rule the south-west monsoon spreads from June to September or October, and, as in South Madras, the north-east monsoon from October to December, but the conditions differ in different localities. The following are the groupings :—

For the Bombay circles :—June to September, October to February, March to May.

For the Madras circles :—June to September, October to December, January to March, April and May.

For the Punjab circles :—June to September, October and November, December to March, April and May.

For the circles in Bengal, Bihar and Orissa and Assam :—June to September, October and November, December to February, March to May.

For the United Provinces circles :—April to August, September and October, November to March.

For the Central Provinces and Berar circles :—June to August, September to November, December to February, March to May.

APPENDIX F.

Summary of the Injurious Effects on Crops of Shortage, Excess or Uneven Distribution of Rainfall.

Chapter VI, page 61, para. 163.

1891-92. Bengal, Bihar, Punjab and Madras.

1. 1891-92. In Bengal and Bihar, a deficiency of rainfall during the months of June to September damaged the winter rice-crop to a certain extent almost throughout the Presidency. The rainfall during the months of October and November was also deficient and affected the *rabi* crops seriously. In the Punjab, the year was one of severe drought and there was hardly any district west of the Sutlej, where the rainfall was more than half the normal. The want of rain was most marked in the winter months and the *rabi* crops suffered heavily in consequence. In the Madras Presidency, the South-West monsoon was very late and seriously deficient, and the North-East monsoon, although fairly good in some districts, failed in others. The result was that the season was disastrous for the Presidency. The outturns of crops were very poor and in many districts vast areas were either left waste or yielded practically nothing, and the inevitable consequence was a serious scarcity.

1893-94. Central Provinces.

2. 1893-94. In the Central Provinces, there was an excess of rainfall in the winter and spring months, and this resulted in an extensive and very serious damage to the *rabi* crops.

1894-95. United Provinces and Punjab.

3. 1894-95. In the United Provinces of Agra and Oudh, the rainfall in August, and in the earlier part of September and October, was extraordinarily heavy, causing inundations and serious damage to the *kharif* crop. The *rabi* crop was also not up to the average owing to the continuance of the heavy rains up to November. In the Punjab, the *kharif* crops over large areas were destroyed by floods caused by heavy rainfall.

1895-96. United Provinces and Punjab.

4. 1895-96. In the United Provinces of Agra and Oudh, the *kharif* season rainfall, though sufficient in quantity on the whole, was characterised, in the beginning, by heavy and sudden falls, and ended abruptly before the later autumn crops had been sufficiently irrigated. The *rabi* season was also very dry and winter rains were practically absent. In several parts the rice crop failed and the *rabi* crop was much below the average. In the Punjab, the July and September rains were very light and there were practically no cold weather rains. The insufficiency of rainfall led to the failure of the *kharif* crops in large areas and the *rabi* crop also was poor. The fodder crops suffered most.

1896-97. Bengal and Bihar.

5. 1896-97. In Bengal and Bihar, rainfall was deficient in June, July, and August, and ceased early in September. In October and even in November, the rainfall was everywhere deficient. The winter rice crop, which was injured by the deficient rainfall of July and August, was ruined by the too early cessation of the monsoon. The absence of rain in October was further aggravated in the riparian districts of Northern and Eastern Bengal by the unusually low level of the rivers which did not rise high enough to inundate the *bhils* where much of the winter rice crop is grown. As a result, the winter rice crop for these provinces, as a whole, yielded less than half the normal outturn. The *rabi* crop was also much below the average.

1896-97. United Provinces and Punjab.

6. In the United Provinces of Agra and Oudh, the *kharif* rains were scanty and ill-distributed, and also ceased early. The irrigated crops of the *kharif* season did fairly well, but the unirrigated ones dried up altogether or

gave a very meagre outturn. The *rabi* season opened badly, but seasonable rainfall coming in soon after, the crop was, on the whole, not bad, except in Bundelkhand, where the wheat crop was almost a total failure. In the Punjab, the extreme lightness of the monsoon rains and their early and abrupt cessation caused extensive injury to the *kharif* crops which failed over an abnormally large area.

1896-97. Central Provinces and Bombay and Madras Presidencies.

7. In the Bombay Presidency, the South-West monsoon was very weak at the beginning, but later on the *kharif* rains were very heavy causing floods in certain tracts. The monsoon, however, ceased very early in September and there was no rain in October and the greater part of November. As a consequence, both the *kharif* and *rabi* crops on unirrigated lands were very poor yielding less than half the normal outturn. Irrigated crops, specially in Sind, however, did fairly well. In the Central Provinces, there was drought in the months of October and November throughout the province. The *kharif* crop was very poor, rice in most districts did not yield an average of even half the normal and other food-crops were even worse. In Madras, the North-East monsoon failed over large areas in the Circars and the Deccan districts. Floods also damaged the crops in Godavari, Kistna, Tanjore and Trichinopoly. The crop outturn was very poor– paddy yielded about half the normal produce and other food-crops did worse.

Famine of 1897.

8. The season was bad throughout the country and this led to a widespread famine.

9 1898-99. In the Punjab, there was drought in the *kharif* season and the *kharif* crop failed largely. The winter rains were also light and as a consequence, the *rabi* crop yielded a poor outturn.

1899-1900. Bengal, Bihar and Punjab.

10. 1899-1900. The rainfall in Bengal and Bihar in the months of April to August was excessive and extremely ill-distributed. The *bhadoi* crops suffered considerably in consequence. In Chota Nagpur, during September-December, there was very little rain; the fall in January was excessive, but deficient in February; the season consequently proved disastrous to the *rabi* crops in large areas. In the Punjab, there was a total failure of the monsoon rains; the autumn months were much drier than usual and there was no rain in December. As a consequence, there was a total failure of the *kharif* crops —five and a half million acres with *kharif* crops on unirrigated land were altogether withered up. Owing to entire absence of rain in the sowing season, the lowness of the water-level in wells and even the perennial canals having been affected by drought, the *rabi* crop also failed largely, particularly in unirrigated lands where the *rabi* outturn was worse than that of the *kharif*. The failure of the unirrigated *rabi* area was 35 per cent. of the total.

1899-1900. Central Provinces and Bombay and Madras Presidencies.

11. In the Bombay Presidency, the monsoon current was weak and only light showers fell. During subsequent months also the fall was light and insufficient for *kharif* crops, specially rice; towards the end of the *kharif* season, however, there was some heavy rainfall in some tracts. But in the larger part of the Presidency, the rainfall continued light and the *rabi* season was one of unprecedented drought. Both in the *kharif* and *rabi* seasons seedlings in vast areas withered for want of rain, and considerable tracts could not be sown at all, and even in the areas, on which crops came to maturity, the yield was much below normal. In Sind, however, the condition of the crops was a little better. In the Central Provinces also, both the *kharif* and *rabi* rains failed completely and both crops suffered immensely. The loss of crops in the different districts ranged, on the whole, from half the average yield to an almost total loss. In Madras, the rainfall was deficient in many parts of the Presidency and the season was, on the whole, unfavourable to agriculture. The outturn of paddy was half the normal and that of other crops less.

Famine of 1900.

12. The extensive failure of the crops in the Punjab, the Bombay Presidency and Central Provinces and also in Rajputana and Central India, led to a serious famine and caused acute distress throughout the country.

13. 1900-01. In the United Provinses, the *kharif* season rains set in unusually late and were scanty and the distribution also was uneven. Later, the rains were ample and in places extraordinarily heavy, causing damage to lowland crops. The *rabi* season was bright at the beginning but continuance of rain and cloudy weather altered the situation materially at the end. The *kharif* crops were, on the whole, 25 per cent. below the normal and of the *rabi* crops wheat suffered most.

1901-02. Bengal, Bihar, Bombay and Central Provinces.

14. 1901-02. In Bengal and Bihar, the early cessation of the monsoon damaged the winter rice crop everywhere except in Eastern Bengal. There was drought in October when rain was urgently needed to swell the grain. In Bihar, a dry September increased the mischief and caused a serious crop failure in the unirrigated districts. The abrupt termination of the monsoon also retarded *rabi* sowings and although there were heavy showers at the end of November, the subsequent drought extending to the middle of March damaged this crop. In the Bombay Presidency, rains were scanty up to September when some rain fell only in certain tracts. Both *kharif* and *rabi* crops suffered heavily and in some places the crops were almost a total loss. In the Central Provinces, the *kharif* rains were badly distributed and the *rabi* season was almost rainless. Both the crops were damaged and the total yield was about 25 per cent. lower than the normal.

1902-03. Central Provinces.

15. 1902-03. The monsoon rainfall in the Central Provinces commenced late and was light throughout and ceased extraordinarily early in some districts. A heavy storm also damaged the ripening *kharif* crops and as a result, the rice crop was a failure and the other crops also were affected to some extent.

1904-05. United Provinces and Bombay.

16. 1904-05. In the United Provinces of Agra and Oudh, the *kharif* season was fair except in the eastern districts and Bundelkhand where the crops suffered first from wet and then from drought. The outturn in Bundelkhand was poor all round. The *rabi* crops throughout the province were poor due to cold and frost. In the Bombay Presidency, the rainfall in the first part of the year, though heavy in some places, was generally in defect. Afterwards drought prevailed up to September; some heavy rains falling at the time did a little good to the *kharif* crops and helped *rabi* sowing, but later in the season there was practically no rain. Paddy yielded from half to two-thirds of the normal outturn, while the other crops, *kharif* and *rabi*, did worse.

1905-06. Famine in Bombay.

17. 1905-06. In the Bombay Presidency, in the beginning of the year, there were light to heavy showers which helped *kharif* sowings. But the rainfall was afterwards in defect throughout the province, except in some parts, which were visited by storm and where heavy rains damaged the seedlings. The deficient rainfall was harmful to the ripening of the *kharif* crops and to *rabi* sowings. Some rain subsequently fell but did not do much good. The *kharif* crop was much below the average and the *rabi* crop was almost a total failure. In Sind, conditions were comparatively better, but even there the outturns were below normal. As a consequence of these failures, famine was declared in this province and relief works had to be opened.

1906-07. Bengal, Bihar and Punjab.

18. 1906-07. In Bengal and Bihar, want of rain in April and May delayed the sowings of the *bhadoi* crops. The crops suffered from floods in Bihar and some districts in Lower Bengal and the outturn for the province was 70 per cent. of the normal. Winter rice suffered from the irregular distribution of rainfall during the monsoon season. In Bihar and some districts of Bengal, the crop was damaged by floods and excessive rain. The outturn

was about 25 per cent. below normal. In Bihar, there was insufficient rain during the early growth of the *rabi* crops but, in February and March, when they were ripening or being harvested, cloudy weather, rain and hail did extensive damage. In the Punjab, the *rabi* season was rainless at the commencement—then came a period of light showers. Subsequently some abnormal and ill-distributed rain fell with a spell of hot weather. The *rabi* season was, on the whole, unfavourable and wheat suffered heavily.

1907-08. Bengal and Bihar.

19. 1907-08. In Bengal and Bihar, the *bhadoi* crops were damaged by excessive rainfall during the monsoon, and the cessation of rain in the beginning of September aggravated the injury. Heavy rain and consequent floods injuriously affected the winter rice crop in Bihar, Orissa, Chota Nagpur and part of South-West Bengal, while the failure of rains in September and October completed the destruction. The paddy on high lands was a total failure, and the average outturn of the provinces was very poor. The *rabi* crops were also seriously affected, yielding an outturn of about two-thirds of the average.

1907-08. United Provinces and Punjab.

20. The *kharif* rains were late in the United Provinces of Agra and Oudh, and there was dryness and drought during the latter months. The *kharif* crop was thereby seriously injured, and the condition of rice was disastrous. In the Punjab, the pre-monsoon period was marked by a general heavy rain. The monsoon rains were, however, late and terminated abruptly, to the disaster of the *kharif* crops. Winter rains were also late, but when they did come they were excellent. Conditions, however, soon changed and an adverse season prevailed up to the end. In the *kharif*, most of the dry crops were practically lost and the outturns on wet lands were also affected by drought. The average outturn was less than two-thirds of the normal. The *rabi* crops were also affected, but not so badly as the *kharif*.

1907-08. Central Provinces and Bombay and Madras Presidencies.

21. The *kharif* rains in the Bombay Presidency, though generally up to the average, were very unseasonable and ill-distributed, and the *rabi* rains were throughout deficient. In Sind, matters were made worse by the inundations being low. The *kharif* outturn was much below the average, though *rabi* was not bad. Both the *kharif* and *rabi* crops yielded between 30 to 60 per cent. of the average outturn. In the Central Provinces, the monsoon came late. The rainfall was deficient in some parts and in others excessive. Although some subsequently well-distributed rains improved matters, but as the season advanced prospects became worse, and after some light showers the monsoon ended abruptly and untimely. The *rabi* season thus opened badly and although relieved to a certain extent by general rain later on, the season was unfavourable. All the *kharif* crops fared badly, the outturn being about half the normal, and, in some cases, less. The *rabi* crop was much better than the *kharif* and yielded about 70 per cent. of the normal outturn. In Madras, the South-West monsoon was generally deficient and not well-distributed. In some districts, however, there was exceptionally heavy rainfall, causing floods and destroying crops. In the other districts also the outturn was poor.

Famine of 1908.

22. As a result of this widespread failure of crops, famine was declared over large areas almost throughout India and relief works were opened to alleviate distress.

1908-09. Bengal, Bihar and Bombay.

23. 1908-09. In Bihar, want of rains during the monsoon, and their early cessation affected the *bhadoi* crops adversely. In Lower Bengal also this crop was damaged by excessive rainfall in July. The average outturn for these parts was lower than two-thirds of the normal. The meteorological conditions also affected the winter rice crops in Bihar, and in Lower Bengal, Orissa and Chota Nagpur, the crop was damaged by heavy rainfall in July and August and the cessation of rain early in October. The outturn of the crop was over twenty-five per cent. below normal. In Eastern

Bengal, however, this year was marked by a defect of rainfall almost throughout the year and both the *bhadoi* and winter rice suffered seriously. The *rabi* crops suffered from the absence of rain, especially in North Bihar, and although there was some rain in the latter part of January and beginning of February, it was ill-distributed. The outturn was about two-thirds of the normal yield. In the Bombay Presidency, the *kharif* rains were about the average in more than a third of the province, in less than a third it was above the average while in the remaining third it was markedly deficient. The *rabi* rains were in serious defect throughout. In Sind, the season was favourable at the beginning, but heavy rains came later on, damaging crops. The outturn of the *kharif* crops, as indicated by the rainfall, was between 40 to 75 per cent. in some tracts, between 80 to 100 per cent. in others, while in the rest it was as low as 8 to 25 per cent.

1909-10. Bombay and Madras Presidencies.

24. 1909-10. In the Bombay Presidency, the *kharif* rains were generally good except in some parts where they were short. The *rabi* rains were in defect throughout the province. The outturn of *kharif* in the eastern districts was low and ranged between 40 to 75 per cent. of the normal. The *rabi* crops yielded good results in some parts, but bad in others, the yield ranging between 40 to 90 per cent., except in Gujarat where it was between 60 to 120 per cent. In Sind, the season was made unfavourable by a low and short inundation in addition to deficient rainfall. The outturn of *kharif* crops in Sind averaged between 50 to 75 per cent. and of *rabi* between 60 to 90 per cent. of the normal. In the Madras Presidency, the rainfall during the North-East monsoon was deficient throughout the province and markedly so in some districts. The outturn of crops was much below the normal, the yield ranging between 50 per cent. to normal, the latter having been attained in only a few districts and that also for one or two crops.

1910-11. Bombay Presidency.

25. 1910-11. In the Bombay Presidency, the monsoon set in late and then there was a trying break, followed, however, by good rains. The season was specially bad in Gujarat and Sind. In Gujarat, both the *kharif* and *rabi* crops yielded from 60 to 90 per cent. of the normal and the yield of rice in Sind was only 42 per cent.

1911-12. Punjab and Bombay and Madras Presidencies.

26. 1911-12. In the Punjab, the monsoon commenced with general rain for a few days and then a prolonged drought ensued, with some fitful rains in August and September; and the monsoon disappeared by the end of September after a cyclonic storm. It was thus very defective and was also singularly ill-timed. The *rabi* season opened well but was followed by an alarmingly dry weather in February and March; the apprehended disaster was, however, averted by some good showers in April and May. All the *kharif* crops fared badly and the outturn was much below the normal. But the *rabi* gave pretty good results, the wheat crop being almost a bumper one. In the Bombay Presidency, the *kharif* season was extremely unpropitious. The monsoon current weakened soon after opening. A fresh current set in after a time, but it lasted only a short while. There were then, consecutively, a long break, moderate rain, and no or very deficient rain. The *rabi* rains were also much short of the normal. The *kharif* crops in some parts of Gujarat were absolute failures while in the other parts of the Presidency the yield was poor. The *rabi* crops gave a moderate outturn only in favourable situations helped by irrigation, elsewhere they averaged very poorly. In Sind, the outturn of all crops was hardly fair. In Madras, the rainfall during the South-West monsoon was either insufficient or untimely. The paddy crop averaged between 60 to 80 per cent. of the normal, other food-crops giving a worse yield in some districts.

Other sources of danger to crops. Bengal and Bihar.

27. It may be noted that apart from bad rainfall, there are other influences that militate against a good harvest, *e.g.*, floods, hailstorm, frost, rust,

cloudy weather, intense cold, etc. Locusts and other insects and field rats also cause extensive injury to the crops. Thus in Bengal and Bihar, floods did considerable damage to the crops in 1890-91. Destructive floods in 1893-94 caused serious loss to both the *bhadoi* and winter rice crops. In 1895-96, cyclonic storms and floods played havoc on the *bhadoi* and winter rice crops, particularly in Northern and Eastern Bengal, and in 1896-97, they destroyed these crops over large areas. In 1898-99, there were again high floods in Bihar and a portion of South-West Bengal, and in the latter area the situation was made worse by locusts, grasshoppers and other insect-pests. The frost in the February of 1904-05 did much damage to the standing crops in Bihar and North Bengal. Unusually high floods seriously damaged both the *bhadoi* and winter rice crops in Eastern Bengal and Bihar in 1905-06, and the condition was repeated in 1906-07, when part of Lower Bengal was also affected. In 1907-08, floods occurred again in Orissa, Chota Nagpur and part of Southern and Western Bengal and caused some damage to the crops.

United Provinces.

28. In the United Provinces of Agra and Oudh, in 1891-92, considerable damage to the *rabi* crop was caused by high winds in March, and hail also did injury in some districts. In 1893-94, high winds, cloudy weather and insects did considerable damage to the ripening *rabi* crops. In 1896-97, hot west winds did extensive harm to the standing *rabi* crops. The *rabi* season of 1904-05 was marked by an exceptionally intense cold, damp and cloud, and there were frosts of unprecedented severity in February. In 1906-07, certain tracts of Bundelkhand suffered from storm and floods. In 1910-11 and 1911-12, heavy floods caused disappointment in certain tracts.

Punjab and North-West Frontier.

29. In the Punjab, rust appeared in the wheat in many parts of the province in 1894-95. In 1898-99, severe storms with or without hail raged over many parts, and locusts caused additional injury in Eastern Punjab. In 1899-00, rust and field rats caused extensive injuries. In 1901-02, there were severe frosts in February, and in the frontier districts hailstorms and high winds in September and October caused much harm. The expectation of a bumper *rabi* crop in the frontier districts in 1906-07, was not fulfilled through cloudy weather and frequent hailstorms. In 1907-08, there were floods in the Indus valley, damaging crops to a serious extent, and hot winds and hailstorms in the frontier districts altered the favourable *rabi* season into an unfavourable one. And in 1909-10, part of the frontier districts were adversely affected by hailstorms, so much so that remissions of land revenue had to be sanctioned.

Bombay, Madras and Central Provinces.

30. In the Bombay Presidency, floods in 1896-97 caused injury to the crops in some tracts, and this aggravated an already bad situation. In 1904-05, locusts appeared and there were severe cold and frost, all these affecting the *rabi* crops very adversely. In 1905-06, frosts added to the injury caused by deficient rainfall, and famine was declared in that province. In the Central Provinces, in 1890-91, hailstorms and high winds added to the abnormality of the *rabi* season, and cloudy weather and hailstorms did considerable damage to the ripening *rabi* crops in 1892-93. In 1894-95, the abnormally warm and cloudy weather in the winter months gave rise to blight, and there were insect pests also. In 1898-99, all the *rabi* crops were affected by frost. The province was visited by hailstorms during 1903-04 and the damage caused was considerable over some areas, necessitating remission of revenue in some districts. In 1904-05, frosts in February seriously damaged the wheat crop which was otherwise good. In Madras, in 1890-91, heavy floods in October caused extensive damage. In 1905-06, a cyclonic storm of a rather disastrous type caused serious damage to the crops in September. And in 1907-08, heavy floods destroyed crops over wide areas.

Table showing Deficiencies of 30 per cent. and over and Excesses of 50 per cent. and over in Rainfall in the several Circles in Important Seasons.

(*Vide para. 163, Chapter VI.*)

Year.	Deficiencies of 30 per cent. and over.		Excesses of 50 per cent. and over.	
1890 .	*Punjab, East.*—December 1889 to March.	38		
	Punjab, West.—December 1889 to March.	44		
	Madras, West.—October to December.	65		
1891 .	*Bengal, Northern and Eastern.*—June to September.	66	*Bundelkhand.*—September to October.	246
	Bihar.—October and November .	57	*Agra Provinces, North and West* .	178
	Punjab, West.—June to September	58	*Punjab, East.*—December 1890 to March.	212
	Sind.—June to September . .	15	*Punjab, West.*—December 1890 to March.	170
	Madras, North-East.—October to December.	30	*Deccan.*—October 1890 to February.	171
	Madras, North.—June to September.	51	*Berar.*—September to November	231
	Madras, North.—October to December.	55	*Central Provinces.*—September to November.	239
	Madras, South.—June to September.	58		
	Madras, West.—June to September.	64		
1892 .	*Bihar.*—October to November .	21	*Punjab, West.*—June to September	166
	Agra Provinces, East.—September to October.	39	*Sind.*—June to September .	236
	Bundelkhand.—September and October.	61	*Berar.*—September to November	223
	Agra Provinces, North and West.—November 1891 to March.	49	*Madras, North.*—June to September.	151
	Agra Provinces, North and West.—September and October.	54		
	Punjab, East.—December 1891 to March.	30		
	Punjab, West.—December 1891 to March.	17		
	Madras, South —October to December.	42		
1893 .	....		*Bihar.*—October and November .	168
			Agra Provinces, East.—September and October.	179
			Bundelkhand.—April to August .	206
			Bundelkhand.—September to October.	185
			Agra Provinces, North and West.—November 1892 to March.	186
			Agra Provinces, North and West.—September and October.	158
			Punjab, East.—December 1892 to March.	228
			Konkan.—October 1892 to February.	174

The figures represent the proportion of the actual to normal (= 100) rainfall in the seasons concerned.

Table showing Deficiencies of 30 per cent. and over and Excesses of 50 per cent. and over in Rainfall in the several Circles in Important Seasons—*contd.*

Year.	Deficiencies of 30 per cent. and over.		Excesses of 50 per cent. and over.	
1893	....		*Deccan.*—October 1892 to February.	173
			Berar.—September to November	151
			Central Provinces.—September to November.	156
			Madras, North.—October to December.	161
1894	*Madras, West.*—October to December.	63	*Assam.*—October and November.	266
			Bengal, Northern and Eastern.—October and November.	188
			Bengal, Southern and Western.—October and November.	153
			Bihar.—October and November	314
			Agra Provinces, East.—September and October.	219
			Bundelkhand.—September and October.	267
			Agra Provinces, North and West.—September and October.	229
			Punjab, East.—December 1893 to March.	187
			Punjab, East.—June to September	154
			Sind.—June to September	192
			Gujarat.—June to September	151
			Berar.—September to November.	199
			Central Provinces.—September to November.	173
1895	*Bihar.*—October and November	21	*Agra Provinces, North and West.*—November 1894 to March.	278
	Bundelkhand.—September and October.	27	*Punjab, East.*—December 1894 to March.	175
	Agra Provinces, North and West.—September and October.	57		
	Punjab, West.—April and May	48		
	Central Provinces.—September to November.	42		
1896	*Bihar.*—October and November	12		
	Agra Provinces, East.—September and October.	10		
	Bundelkhand.—September and October.	7		
	Agra Provinces, North and West.—November 1895 to March.	24		
	Agra Provinces, North and West.—September and October.	4		
	Punjab, East.—December 1895 to March.	64		
	Punjab, West.—December 1895 to March.	66		
	Punjab, West.—June to September	69		
	Berar.—September to November	13		
	Central Provinces.—September to November.	24		

The figures represent the proportion of the actual to normal (= 100) rainfall in the seasons concerned.

Table showing Deficiencies of 30 per cent. and over and Excesses of 50 per cent. and over in Rainfall in the several Circles in Important Seasons—*contd.*

Year.	Deficiencies of 30 per cent. and over.		Excesses of 50 per cent. and over.	
1896	*Madras, North and East.*—October to December.	47		
	Madras, North.—June to September	65		
	Madras, North.—October to December.	53		
1897	*Bundelkhand.*—September to October.	54	*Bihar.*—October to November	278
	Konkan.—October 1896 to February.	35	*Sind.*—June to September	191
	Madras, North.—October to December.	47		
	Madras, South.—October to December.	48		
1898	*Bihar.*—October to November	43	*Madras, South.*—October to December.	164
	Punjab, West.—April and May	47		
1899	*Bihar.*—October to November	38	*Agra Provinces, East.*—April to August.	159
	Agra Provinces, East.—September to October.	37		
	Bundelkhand.—September to October.	28		
	Agra Provinces, North and East.—September to October.	23		
	Punjab, East.—December 1898 to March.	40		
	Punjab, East.—June to September	48		
	Punjab, West.—June to September	57		
	Sind.—June to September	1		
	Gujarat.—June to September	30		
	Konkan.—June to September	50		
	Deccan.—June to September	55		
	Berar.—June to August	40		
	Berar.—September to November	20		
	Central Provinces.—June to August	59		
	Central Provinces.—September to November.	23		
	Madras, North-East.—October to December.	57		
	Madras, North.—October to December.	40		
	Madras, South.—June to September.	69		
	Madras, West.—June to September	67		
	Madras, West.—October to December.	53		
1900	*Agra Provinces, East.*—April to August.	66	*Agra Provinces, East.*—September and October.	160
	Punjab, East.—December 1899 to March.	53	*Punjab, West.*—April to May	171
	Konkan.—October 1899 to February.	33	*Central Provinces.*—September to November.	162
	Madras, North-East.—October to December.	61		
	Madras, North.—October to December.	52		
	Madras, West.—October to December.	54		

The figures represent the proportion of the actual to normal (= 100) rainfall in the seasons concerned.

Table showing Deficiencies of 30 per cent. and over and Excesses of 50 per cent. and over in Rainfall in the several Circles in Important Seasons—*contd.*

Year.	Deficiencies of 30 per cent. and over.		Excesses of 50 per cent. and over.	
1901 .	*Bihar.*—October and November .	35	*Agra Provinces, North and West.*—November 1900 to February.	223
	Agra Provinces, East.—April to August.	69	*Punjab, East.*—December 1900 to March.	153
	Bundelkhand.—September and October.	63		
	Punjab, West.—June to September.	65		
	Sind.—June to September . .	29		
	Gujarat.—June to September .	65		
	Konkan.—October 1900 to February.	17		
	Deccan.—October 1900 to February.	45		
	Berar.—September to November	60		
	Central Provinces.—September to November.	65		
1902 .	*Bihar.*—October to November .	45	*Sind.*—June to September . .	157
	Agra Provinces, North and West.—November 1901 to February.	20		
	Punjab, East.—December 1901 to March.	16		
	Punjab, West.—December 1901 to March.	17		
	Konkan.—October 1901 to February.	53		
	Madras, West.—April and May .	68		
	Central Provinces.—June to August.	65		
1903 .	*Bundelkhand.*—April to August .	67	*Bengal, Southern and Western.*—October and November.	158
	Agra Provinces, North and West.—November 1902 to March.	27	*Bihar.*—October and November .	227
	Sind.—June to September . .	67	*Agra Provinces, East.*—September and October.	257
			Bundelkhand.—September and October.	241
			Agra Provinces, North and West.—September and October.	231
			Deccan.—October 1902 to February.	188
			Central Provinces.—September to November.	151
			Madras, North.—October to December.	196
1904 .	*Agra Provinces, East.*—September and October.	64	*Bihar.*—October to November .	157
	Bundelkhand.—September and October.	40	*Punjab, East.*—December 1903 to March.	151
	Agra Provinces, North and West.—November 1903 to March.	53	*Punjab, West.*—December 1903 to March.	205
	Punjab, East.—June to September	67		
	Punjab, West.—June to September	67		
	Sind.—June to September . .	12		
	Gujarat.—June to September .	46		
	Berar.—June to August . .	63		

The figures represent the proportion of the actual to normal (= 100) rainfall in the seasons concerned.

Table showing Deficiencies of 30 per cent. and over and Excesses of 50 per cent. and over in Rainfall in the several Circles in Important Seasons—*contd.*

Year.	Deficiencies of 30 per cent. and over.		Excesses of 50 per cent. and over.	
1904	*Madras, North.*—June to September.	55		
	Madras, South.—October to December.	56		
1905	*Bihar.*—October to November	19	*Agra Provinces, North and West.*—November 1904 to March.	217
	Bundelkhand.—April to August	38	*Punjab, East.*—December 1904 to March.	152
	Bundelkhand.—September to October.	62		
	Agra Provinces, North and West.—April to August.	58		
	Agra Provinces, North and West.—September to October.	62		
	Punjab, East.— June to September.	69		
	Punjab, West.—June to September.	55		
	Sind.—June to September	28		
	Konkan.—June to September	63		
	Deccan.—June to September	65		
	Madras, North and East.—October to December.	39		
1906	*Agra Provinces, East.*—September to October.	41	*Bundelkhand.*—September to October.	233
	Berar.—September to November	48	*Agra Provinces, North and West.*—November 1905 to March.	159
			Punjab, East.—December 1905 to March.	173
			Punjab, West.—December 1905 to March.	179
1907	*Bihar.*—October to November	5	*Agra Provinces, North and West.*—November 1906 to March.	167
	Agra Provinces, East.—September to October.	23	*Punjab, East.*—December 1906 to March.	188
	Bundelkhand.—September to October.	1	*Punjab, West.*—December 1906 to March.	156
	Agra Provinces, North and West.—September to October.	1		
	Punjab, East.—June to September	67		
	Konkan.—October 1906 to February.	56		
	Berar.—September to November	20		
	Central Provinces.—September to November.	45		
	Madras, North and East.—October to December.	65		
	Madras, North.—October to December.	65		
1908	*Bengal, Northern and Eastern.*—June to September.	67	*Punjab, East.*—June to September	168
	Bengal, Northern and Eastern.—October to November.	27	*Sind.*—June to September	228

The figures represent the proportion of the actual to normal (= 100) rainfall in the season concerned.

Table showing Deficiencies of 30 per cent. and over and Excesses of 50 per cent. and over in Rainfall in the several Circles in Important Seasons—*contd.*

Year.	Deficiencies of 30 per cent. and over.		Excesses of 50 per cent. and over.	
1908	*Bengal, Southern and Western.*—October to November.	34		
	Bihar.—June to September	63		
	Bihar.—October to November	36		
	Agra Provinces, East.—September to October.	53		
	Bundelkhand.—September to October.	34		
	Agra Provinces, North and West.—November 1907 to March.	62		
	Agra Provinces, North and West.—September to October.	24		
	Punjab, East.—December 1907 to March.	61		
	Konkan.—October 1907 to February.	35		
	Deccan.—October 1907 to February.	17		
	Madras, North and East.—October to December.	49		
	Madras, North.—October to December.	39		
	Madras, West.—October to December.	50		
1909	*Bihar.*—October to November	55		
	Agra Provinces, East.—September to October.	69		
	Bundelkhand.—September to October.	66		
	Agra Provinces, North and West.—November 1908 to March.	36		
	Agra Provinces, North and West.—September to October.	67		
	Punjab, East.—December 1908 to March.	54		
	Punjab, West.—December 1908 to March.	65		
	Konkan.—October 1908 to February.	22		
	Deccan.—October 1908 to February.	21		
	Central Provinces.—September to November.	58		
	Madras, North and East.—October to December.	34		
	Madras, North.—October to December.	16		
	Madras, South.—October to December.	51		
1910	*Agra Provinces, North and West.*—November 1909 to March.	69	*Bihar.*—October to November	164
	Konkan.—October 1909 to February.	30	*Bundelkhand.*—September to October.	179
	Deccan.—October 1909 to February.	46	*Agra Provinces, North and West.*—September to October.	195
			Punjab, West.—June to September.	151
			Sind.—June to September	161

The figures represent the proportion of the actual to the normal (= 100) rainfall in the seasons concerned.

Table showing Deficiencies of 30 per cent. and over and Excesses of 50 per cent. and over in Rainfall in the several Circles in Important Seasons—*concld.*

Year.	Deficiencies of 30 per cent. and over.		Excesses of 50 per cent. and over.	
			Bihar.—September to November	181
			Central Provinces.—September to November.	157
			Madras, North.—June to September.	151
1911 .	*Bundelkhand.*—April to August	50	*Bihar.*—October to November .	189
	Agra Provinces, North and West.—April to August.	46	*Agra Provinces, East.*—September to October.	187
	Punjab, East.—June to September.	60	*Bundelkhand.*—September to October.	291
	Punjab, West.—June to September.	45	*Agra Provinces, North and West.*—November 1910 to March.	185
	Sind.—June to September . .	7	*Agra Provinces, North and West.*—September 1910 to October.	224
	Gujarat.—June to September .	43	*Punjab, East.*—December 1910 to March.	241
	Deccan.—June to September .	64	*Punjab, West.*—December 1910 to March.	222
	Madras, North.—October to December.	65		
1912 .	*Agra Provinces, East.*—September to October.	25		
	Konkan.—October 1911 to February.	56		
	Berar.—September to November.	44		

The figures represent the proportion of the actual to the normal (= 100) rainfall in the seasons concerned.

APPENDIX G.

The collection, classification and compilation of wage statistics.

(*Chapter III, page 18, para. 46.*)

How present wages returns are collected.

1. The official District returns of wages date from 1873. In that year the Government of India directed that District Officers should submit half-yearly returns showing "the average wages per month" of unskilled and skilled labour—an able-bodied agricultural labourer, and a syce or horsekeeper as representative of a domestic servant being taken as types of the former, and a common mason, carpenter, or blacksmith being taken as a type of the latter. Information collected by tahsildars, mamlatdars, or, as in Bengal, by police officers in charge of thanas, forms the basis of the returns submitted by Collectors and these after examination in the office of the Director of Agriculture or, as in Madras, by the Board of Revenue, are published in the provincial Gazette. From these half-yearly returns, a series of comparative figures for selected (but not typical) districts in each province have been published annually in the "Prices and Wages" since 1884 together with the rates in the initial year 1873.

Unsatisfactory nature of the returns.

2. It is to this source that one desirous of obtaining information on the economics of an Indian province would invariably refer. It, however, fails entirely to give any reliable index of the fluctuations in the earnings of the different working classes in India. The system of engaging and remunerating labour differs widely not only in different parts of India but also in the same district and in collating wage statistics it is impossible to expect the untrained agency employed in collecting the statistics to make the necessary allowances for the varying conditions of employment. No discrimination has been made between rates prevailing in rural and urban areas, between agricultural rates and town rates, and in many cases cash wages for labourers employed in towns or their neighbourhood which are in no way typical of the rates prevailing in agricultural areas have been returned as such. Horsekeepers have been taken as typical of domestic servants generally, but the class represented is unimportant. Confusion is also caused by combining under one head the wages of the mason, the carpenter and the blacksmith, for their remuneration is far from equal and in some cases the word "common" has been read as applying only to the mason, and wages have been returned for the carpenter or the blacksmith, and more particularly for the latter, at a scale far above the average of the trade.

Quinquennial wage census introduced.

3. Owing to their unsatisfactory nature the half-yearly statements have been discontinued in the United Provinces from 1907, in Bengal and Madras from 1908, in the Central Provinces from 1909, and in the Punjab and the North West Frontier Province from 1910. From 1911 a quinquennial wage census has been introduced in all provinces and this is expected to afford a more reliable source of information about wages than was possible before. In addition to the information furnished half-yearly by Local Governments from 1873 till recent years, statistics showing the rates of wages in industrial concerns, in the Public Works and Military Departments, in the Post Office, and on certain railways have also been annually published in the "Prices and Wages."

Impracticability of using the figures published in "Prices and Wages."

4. For the present enquiry it has been found impossible to utilise the statistics published in the "Prices and Wages" for agricultural labour, and for common masons, carpenters, or blacksmiths as representing skilled labourers. The results indicated by these statistics are in many cases wholly unreliable. Mr. Moreland in a note on the system of collecting statistics of wages in the United Provinces says: "During 29 years we find that cash wages have risen in six districts, fallen in four, and been stationary in one; that four, out of the six rises,

have occurred in the more stagnant parts of the provinces; and that two, out of the three most prosperous districts, show a substantial fall. These conclusions are contrary to all experience.'' Mr. Shirras in a note on a quinquennial wage census for Eastern Bengal and Assam says: "The average cash wages of agricultural labourers in Sylhet according to the half-yearly returns have declined during the last three years. Any one knowing the district is well aware that it is anything but so. No one from Cachar would accept the statement recorded in the returns that agricultural wages constantly declined between 1875 and 1895.''

Difficulty of converting labourers' wages as given in "Prices and Wages" to a common standard.

5. To convert a labourer's remuneration to a common standard is a process of unusual difficulty. An average wage may be reported as varying between 5 and 12 rupees but no reliable conclusions can be drawn from this unless we know the proportion of labourers who draw pay at the higher or lower rates. Though for many classes of labour, wages are paid by the month, and not by the day or year, agricultural wages are extremely unsuitable to be reckoned by the month. These wages are generally paid by the day and if a monthly rate is calculated, the element of unemployment has to be allowed for. If the daily rate is 2 annas 6 pies and the wage-earner is unemployed for 5 days in the month the real average wage for a month of 30 days is Rs. 3 annas 14 pies 6 and not Rs. 4 annas 11. In addition to the daily wage paid in cash or in paddy, coarse grain, or flour, there are such diverse items as some handfuls of parched peas, tobacco, a pot of sugarcane juice, a bag of unginned cotton, or the loan of a plough and a pair of bullocks. Care must be taken as to what prices are to be used in the conversion of grain wages into cash wages. In the United Provinces, grain rates were converted to cash at normal prices, not at the prices for the time being. In recent years, cash wages have, however, been rapidly displacing wages in kind, chiefly owing to the rise in the prices of food grains and to the development of tracts which were formerly outside the network of railways and major roads.

Classification of wage-earners.

6. The first step in the collection of wage statistics in this enquiry was the selection of different classes of wage-earners and their classification. Roughly speaking the population of India may be divided as follows: dependent on the land for their income 60 per cent., agricultural labourers 13·3 per cent., industrial and commercial 18·1 per cent., general labourers not agricultural 2·3 per cent., professional 1·6 per cent., public servants 1·2 per cent., domestic service 1·5 per cent., and others 2 per cent. This shows that wage-earners in India do not form as large a proportion of the total population as that in a country of Western Europe. The wage-earners have been divided into four classes—wage-earners in rural areas, wage-earners in urban areas, wage-earners in important cities with a large population, and wage-earners employed in factories, *i.e.*, in centres of industry. The classes for which statistics have been compiled for rural areas are village carpenters, village blacksmiths, agricultural labourers (ploughmen, reapers, weeders, sowers, transplanters, and 'others'), thatchers, and gharamis. For urban areas and large cities the following classes have been selected: skilled carpenters, skilled blacksmiths, superior and common masons, bricklayers, brickmoulders, stonecutters, house painters, coolies (men, women and boys), beldars or diggers of earth, drivers (with a pair of oxen), and domestic servants—coachmen, syces, sweepers, and bhisties. The fourth division, *viz.*, wage-earners who work in factories in the centres of industry, includes the above as well as all hands employed in railway workshops, collieries, cotton, jute and woollen mills, tea gardens, etc.

Peculiarities in the case of the different classes.

7. Both in rural and in urban areas wages are usually paid by the day. Domestic servants and ploughmen, however, are paid by the month. In addition to the cash wage, several classes of agricultural and domestic labour receive important

perquisites. A ploughman who, as a rule, serves one master a life-time, gets food, clothing, shelter, and a present or loan when he marries his children. The domestic servants of Indians receive usually a lower wage than that earned by similar servants of Europeans. The reason is that Indians feed and in many cases even clothe their servants and this goes far to compensate for the higher cash wage earned by the servants of Europeans, who are required to clothe themselves in a style much better than servants in the employ of Indians. It is necessary to remember that the wages shown under rural areas are the wages paid to free labourers by cultivators who have no special claim to their services. Zemindars in Bengal and landholders of influence in other provinces also, for example, get their work done much cheaper than the ordinary cultivator. In the west of the United Provinces, Mr. Moreland says, the difference was an anna or more and in the east from half an anna to one anna. The rates for each district and circle have been calculated after a careful scrutiny of the tabulated returns. The rural rates published are typical of the circle as a whole. The urban rates are for towns which are not important centres of trade or the seats of administration. The statistics of the third division have been obtained from important cities with a large population and those of the fourth from factories in Calcutta, Bombay, Madras, Rangoon, Cawnpore, Hathras, Sholapur, etc.

Process of compilation.

8. The process of compilation has been briefly as follows:—The statistics furnished from all sources were examined and quotations which were *primâ facie* unreliable were discarded; the statistics which were not rejected were then posted into separate statements for each class of labour for each district. The average was then calculated for the district for each class of labour. The results were then posted on separate statements for each class of labour for each circle and the circle average for each class of labour was arrived at. At each stage of the process the figures were checked, and this checking of some ten lakhs of entries involved no small amount of labour.

Wages in special industries published in "Prices and Wages" utilised.

9. The wages of special industries published in the "Prices and Wages" have been utilised along with the statistics received from the proprietors, managers or managing agents of some mills and factories. The wages of tea garden coolies have been compiled from the reports on Labour Immigration into Assam. By the courtesy of the President of the Railway Board, statistics have been obtained of the wages of labourers employed on the principal railways the combined result of these statistics also appears separately in this report As in the case of prices, index numbers have been calculated of all the wage statistics published, the average of the years 1890-1894 being taken as base.

APPENDIX H.

Statistics of Trade.

(Chapter III, page 20, para. 51.)

Foreign Sea-borne Trade—sources of compilation.

1. Statistics of the foreign or external sea-borne trade between British Indian ports and foreign countries are published by the Director General of Commercial Intelligence in his 'Annual Statements of the Sea-borne Trade and Navigation of British India with the British Empire and Foreign Countries.' The foreign trade of ports in Native States is not recorded; the total amount of trade, in this case is, however, small owing to the absence of large harbours suitable for ocean-going steamers, and to the prohibition of direct transhipment at British ports. The trade of the French and Portuguese possessions in India is also not included, although returns are made to the Commercial Intelligence Department. The annual statements are based, both as regards quantities and values, on the declarations of importers and exporters in Bills of Entry and Shipping Bills which are checked by the Customs Officials. As far as possible the quantity of goods is given by weight (tons, cwts., lbs., ozs., etc.), but in certain cases, according to trade usage, by number, gallons, or yards. The weight is always the net weight, *i.e.*, the weight of the packing is neglected. The value of goods imported or exported represent, according to the provisions of the Indian Sea Customs Act (1), 'the wholesale cash price, less trade discount,' for which goods of the like kind and quality are sold, or are capable of being sold, at the time and place of importation or exportation, as the case may be, without any abatement or deduction whatever, except (in the case of goods imported) of the amount of the duties payable on the importation thereof; or (2) where such price is not ascertainable, the cost at which goods of the like kind and quantity could be delivered at such place without any abatement or deduction except as aforesaid. Foreign merchandise (*i.e.*, 'all goods not the growth, produce, or manufacture of India') transhipped at ports in India is excluded from the compilations. Indian ports are not transhipment centres for foreign countries to any large extent and transhipments are not in these circumstances taken into account in the trade returns.

Necessity of compiling separate statistics for India including Burma, India excluding Burma and Burma.

2. As Burma has been excluded from the scope of the enquiry, it has been necessary to compile statistics of foreign sea-borne trade of British India excluding Burma. The imports and exports of Burma from and to foreign countries have been excluded, while the trade of other parts of British India with Burma has been included. Separate statistics have also been compiled of the sea-borne trade of Burma itself. These include the imports and exports of Burma from and to foreign countries as well as those from and to other parts of British India. Thus three sets of tables are published; the first, showing the imports and exports of the whole of British India from and to foreign countries; the second, the imports and exports of British India excluding Burma from and to foreign countries and Burma; and the third, showing the imports and exports of Burma itself from and to foreign countries and other parts of British India. Each of the three sets of tables shows (1) the declared values of imports and exports from 1890-91 to 1911-12, and (2) the quantities of imports and exports for the same period. The tables for the first two sets also show the values of imports and exports calculated at the average price of the period 1890 to 1894-95.

Statistics compiled.

3. It has already been explained in Chapter III of the report that (1) the imports in all cases are net imports both as regards value and quantity, the re-exports having been deducted; (2) the imports and exports by parcel post

are included, but the contents of foreign registered letters are not included: and (3) the imports and exports of the Government stores are excluded from the statements compiled for this report.

4. As has also been stated before, a separate set of statements adapted from a publication of the London Board of Trade is also published, comparing the annual declared values of the total imports and exports, and also of some important classes of articles with their averages for the quinquennium 1890-91 to 1894-95, and at the same time distributing the differences according as they are due to (1) fluctuations in quantities only, (2) fluctuations in prices only, and (3) fluctuations in prices on the difference between the quantities of any year and those of the quinquennium 1890-91 to 1894-95.

Foreign land trade—sources of compilation.

5. The sources of the foreign or external land trade statistics are the provincial reports of such trade carried between British India and foreign countries over the frontier. The volume of such trade is, however, small and statistics are given only for a small number of articles. As the statistics of this trade cannot be combined with those of the foreign sea-borne trade without impairing their usefulness the two sets of figures have been kept separate.

Provincial trade.

6. The sources of the provincial trade statistics are the provincial reports on Inland Trade and the reports dealing with Foreign and Coasting Trade and the Frontier Trade. The total supply of an article available for consumption in any locality is the total production of that article in the locality *plus* the imports and *minus* the exports to other places. To determine the total supply of commodities in the different provinces between 1890 and 1911 the statistics of internal trade are, therefore, of considerable assistance. To prepare these statements it is essentially necessary that inland trade, both rail and river-borne, and frontier trade and, for the maritime provinces, the coasting and foreign trade also should be included.

Present methods of registering and compiling inland trade statistics.

7. The method of registration of inland trade has already been referred to incidentally, but it will now be necessary to describe and to examine the method in detail. The main feature of the system is the division of the areas traversed by railways into blocks. The trade registered is the trade which comes into or goes out of each block by rail, excluding the traffic which is booked through. The railway audit offices perform the work of registration. The information is collected from railway invoices which show the nature of the goods, the stations from and to which they are despatched, and their gross weights. The net weights are, however, shown in the compilations, a certain percentage being deducted according to the class of goods from the weight recorded on the railway invoices to allow for the weight of packing material. In Bengal, Assam, the United Provinces, the Punjab and Sind, the river-borne trade is combined with these rail-borne trade statistics. The method of compiling the returns of river-borne trade has not been uniform. The river-borne trade of Bengal, for example (excluding Calcutta), and of Eastern Bengal and Assam with the United Provinces was registered up to 31st March 1908, after which it was discontinued. The river-borne trade now registered is between Bengal and Eastern Bengal and Assam, Calcutta and the United Provinces, the Punjab and Sind and Baluchistan. This trade is the trade carried by inland steamers and country boats. The boat traffic is registered by clerks who collect the required information from the boatmen, and forward the returns to the provincial officers . the steamer traffic is registered by clerks from provincial offices, who extract the information from the invoices recorded in the offices of the steamer companies. Sometimes the trade is registered by the steamer companies themselves. The railway audit offices record trade carried partly by rail and partly by river, when booked through and carried by steamers running in connection with their railways.

Figures showing values of inland trade not reliable.

8. The invoices of the railway and steamer companies do not show the value of the goods, but merely the quantities, and consequently average values have to be assigned to each article. In the case of the great majority of articles of local produce or manufacture, rates for valuation are calculated quarterly from reports of the prices ruling in the principal marts for each article. Values of coal and coke and of railway plant and rolling-stock are reported frequently by the Railway authorities: the values of articles imported by sea, such as piecegoods, metals, liquors, salt, foreign sugar, etc., are reported quarterly by Collectors of Customs : the price of tea is calculated on the average prices realised in Calcutta and London after making allowance for cost of freight from a garden situated at an average distance from Calcutta. Quarterly reports of the prices of some articles, such as machinery and mill work and 'other manufactures' under iron and steel, metallic ores, mineral substances and 'all other articles of merchandise' are not available, and fixed conventional values are adopted in these instances. The rates for valuation of articles exported from one province to another are usually furnished by the exporting province. On the basis of these rates the valuation of internal trade is made in the annual returns. The value figures are on the whole not reliable and as they might lead to a misapprehension, the statistics of the trade in quantities only have been published.

Trade statistics for circles could not be compiled.

9. It has also not been found possible to compile these trade statistics for each circle as the different economic circles into which India has been divided for purposes of this enquiry do not comprise the whole of one or more of the trade-blocks referred to above. Part of one trade-block is situated in one economic circle and part in another. It has, therefore, been necessary to compile, in this case, statistics by provinces and the important ports.

Compilations for official years.

10. In the agricultural and trade returns, the statistics are for financial years (1st April to 31st March) and not, as in the case of price statistics, for calendar years (1st January to 31st December). The agricultural condition of any financial year, say 1909-10, will affect prices of the calendar year 1910 only, because the kharif, though harvested towards the end of the calendar year, actually comes on the market mainly in the following calendar year, while the rabi crop of the financial year is actually harvested at the beginning of the next calendar year.

APPENDIX J.

Statistics of Rates of Freight.

(*Chapter VII, page 24, para. 66.*)

Sources of compilation.

1. The great difficulty in regard to these statistics has been the collecting of information for so long a period as 22 years, as records, in many cases, had not been continuously preserved. The sources of the compilation have been the publications of the Chambers of Commerce of Calcutta, Bombay, Madras, and Karachi for maritime transportation charges. " Conference " freights from London to Calcutta have also been obtained from a London source. They are, however, minimum rates, *i.e.*, rates which the " Conference " agree not to go below. The India Office has also very kindly furnished the freight rates of certain commodities from London to India. For Railway transportation charges, the sources have been the Goods Tariff publications of the various railways. They are bulky volumes and contain a very large number of commodities described in every probable form of transportation.

2. The general method of compilation has been briefly as follows :—The important articles of commerce were first selected by reference to the rail and river-borne traffic reports published annually by each Local Government. The next step was to select the leads by reference to the Goods Tariff publications and then to calculate the rates for the last 23 years. It would be obvious to the most superficial observer that the statistical work involved in this was exceptionally difficult and onerous, as extreme care had to be taken in order to show typical distances and typical freight traffic.

APPENDIX K.

Population Statistics.

(*Chapter III, page 25, para. 70.*)

Difficulties of determining the number of men engaged in different occupations.

1. The difficulties of determining the number of men engaged in each occupation, not only in India but in other countries also, have already been referred to in Chapter III. In March 1901 the "Times" in treating of the approaching census gave some idea of the extent of the error. "The mere tabulation of such a mass of detail would obviously be a work of considerable magnitude, even if all the descriptions were clear and unambiguous. But this is precisely what they are not. The difficulty is twofold: a man engaged, say, in some mechanical pursuit, will naturally describe his occupation by the name under which it is known to him and his fellows without dreaming that the word used may be a technical one which is familiar to none except those following the same or closely allied occupations, and which gives no indication in what broad branch of industry he is to be classed. For instance, the term "pig selector" might to the uninitiated seem to have an agricultural ring about it, but as a fact the worker who is initiated to that designation is engaged in the iron and steam industry. Again, "biscuit placers" have nothing to do with baking bread, nor have all "saddle makers" and "spur makers" any connection with the manufacture of harness for horses.

Census gives the distribution only on one particular day.

2. It should also be remembered that all that a census can tell is the distribution of population on a single day according to occupation, and this will necessarily vary according to the season of the year. Amongst the great class of landless labourers in India the means of livelihood changes with the season, and the same man at one time may be a field-labourer, at another an earth-digger, and again a porter, saltpetre-worker, paddyhusker, palki-bearer, firewood-collector, etc.; so that the head under which he will appear in the Occupation Table depends on the date fixed for the enumeration. Some occupations, such as indigo manufacture and jute pressing, which at certain seasons afford employment to large numbers, were practically obliterated at the census which was taken on the 1st March, while others, such as earthwork or the milling of rice in Rangoon, which was then at its height, were unduly magnified. Secondly, it is far from being the rule that each person follows only one specified occupation. In India the very simplicity of the population predominantly agricultural has its drawbacks; there is not that *differentiation* of occupations as in England, but there is the *combination* of occupations. It is this factor which militates against the completeness and accuracy of the compilations. A worker frequently combines several occupations wholly unconnected with one another, and at the census he is unable to say which is his chief means of support. The fisherman, for instance, is often a boatman; the money-lender, a landowner; the cultivator, a day labourer; the village chowkidar, a cultivator. Then again there are mixed occupations. The *mali* or garland-maker also makes fireworks and flowers of pith; and money-lending and grain-dealing are in many parts merely different aspects of the same business. A *dom* is a scavenger, a drummer as well as a basket-maker. All these would be entered under only one of the heads mentioned. Further, there is throughout India much confusion of thought between a man's caste which connotes his traditional occupation and the means of livelihood by which he actually subsists. A man of the barber caste will often call himself a barber, even when his income is mainly derived from agriculture or some other employment, and a Brahman, especially if a mendicant, will say he is a priest, even though he may never have exercised

the priestly function. The mass of the people are totally illiterate and correspondingly inaccurate. They can hardly be expected to give a clear account of the means of their subsistence, especially when these are numerous or complex. Again, the entries in the schedules are often the reverse of precise. The classification of the population by occupations is thus a matter of great uncertainty.

Changes in classification in the different censuses.

3. To add to the unsuitability of the occupation tables given in the census reports owing to the inaccuracies inherent in their compilation, important changes have been made at each successive census in the scheme of the classification of the different occupations. In 1891 a scheme was devised by Mr. Baines, the Census Commissioner. The occupations were divided into 7 main classes, 24 orders, 77 sub-orders, and 478 groups. In 1901 this was considerably revised, but the main divisions into classes, orders and sub-orders were maintained, the only alteration consisting in the division into two of one of Mr. Baines' classes and two of his sub-orders. In the case of groups, however, although the general arrangement was maintained, there were many alterations in detail. Some of the old groups were amalgamated or transferred to other sub-orders, while, on the other hand, new groups were provided with the object of distinguishing (*a*) makers from sellers and (*b*) workers in factories from those engaged in hand industries. The scheme as thus revised comprised 8 classes, 24 orders, 79 sub-orders and 520 groups. The most important point of difference was that in 1891 dual occupations were shown only where one of them was connected with agriculture, whereas in 1901 the entry of dual occupations was provided for in all cases. In the former case the non-agricultural occupation was taken for the purpose of the general occupation table and a separate return was prepared showing for each occupation the number of persons pursuing it in conjunction with agriculture. In 1901 dual occupations were returned only for actual workers, and the latter were classed according to their principal occupations, whether agriculture or otherwise, and columns were added to show the number of persons entered under each non-agricultural head, only partially who depend on agriculture as a subsidiary means of livelihood. In other words, the figures given in 1901 for rent payers and rent receivers represented the total number who returned these occupations as their principal means of support, whereas in 1891 the corresponding groups included only those who subsisted solely on these pursuits. In 1901 the number of persons who followed agriculture as an accessory to some other occupation was shown against the occupation concerned.

4. Another important departure from the procedure followed in 1891 was in respect to the distinction between the workers and the dependants. In 1891, the tables showed the total population supported by each occupation whether actual workers or dependants, but in 1901 the dependants were shown separately from the actual workers under each occupation. It is unnecessary perhaps to illustrate the difficulties of comparison arising from the changes just referred to. In Bengal, in 1891, many labourers were shown as " coolies unspecified." In 1901, they were classed under the agricultural head. This resulted in nearly 5,000,000 persons being shown in the census of 1901 under class 2—Pasture and Agriculture, compared with only about million and a half in the census of 1891, while class 7 contained 3,000,000 persons less than it did on that occasion. In Madras, the number of general labourers declined between the two censuses from 2½ millions to only ½ million, while agricultural labourers numbered 7½ millions compared with 4,000,000. In Burma, the number of field-labourers rose from 682,000 to 4,322,000, but here the increase is due to the entry under the head of " cultivators pure and simple, " who might have been classed as " rent payers "; the number of persons under this latter head, as well as that of rent receivers, was in the census of 1901 absurdly small, and the aggregate number of persons shown as having an interest in land was less than ¼ the number shown 10 years before. It will be

seen, then, that accuracy in details is well nigh impossible, and that the general totals of classes, circle by circle, will be found approximately reliable, though not for comparative purposes. When, however, the law of large numbers ceases to operate, less reliance must be placed on the figures.

New scheme of classification in the Census of 1911.

5. In the census of 1911, an entirely new scheme of classification has been adopted, based on that devised by M. Bertillon, Chef des Travaux Statistiques de la Ville de Paris, and a prominent European statistician, and recommended for general adoption by the International Statistical Institute. All occupations have been divided into 4 main classes and 12 sub-classes with two series of minor sub-division, *viz.*, 55 orders and 169 groups. In making a comparison between 1901 and 1911, only 61 of the old groups had to be broken up. In these cases an absolute accuracy is, of course, out of the question, but an approximate estimate has been obtained by a rough division. In most cases a sub-division of the old groups has been necessary, because it included both makers and collectors as well as sellers. As a rule, however, the maker or collector is usually also the seller, in which case he has been classed as the former.

APPENDIX L.

Statistics of Rent.

(*Chapter III, page 27, para. 74.*)

Rent Statistics published and their sources.

1. The rent statistics published are for the United Provinces, the Central Provinces, and the Punjab for the entire period 1890-1911. The sources of these statistics are the reports of the Board of Revenue or of the Revenue Administration of the province concerned. During the years 1901-02 and 1902-03, in the United Provinces, the statistics were included in the report on the operations of the Departments of Land Records and Agriculture. In some cases the statistics have been obtained from the District Settlement Reports. In the case of Bombay, Madras and Burma, no rental statistics have been published owing to the fact that these provinces are largely Ryotwari, *i.e.*, where broadly speaking, in the eyes of Government, landlords do not intervene between the State and the cultivator.

Difficulty in forming any conclusions as to the extent of the increase in rents, from the available data.

2. In discussing the rise of rents we have to allow for the fact that a large amount of land is cultivated by the landholder himself not merely in the ryotwari provinces, but in the Punjab and the United Provinces as well. In the ryotwari provinces, there are no rental statistics which can be published and the revenue which Government receives from the cultivators is fixed for a period usually about 30 years. In Bengal, owing to the Permanent Settlement, Government have no records of rental statistics, and it is very difficult to come to any conclusion about rents and how they related to prices. Rents in Bengal are intended to be regulated by the Bengal Tenancy Act, and there is a special section 32 providing for enhancement of rent on the ground of a rise of prices. The applications, however, under this section are few in number, and there are no statistics of the results of such applications from which one could draw any general conclusion. It seems that rents in Bengal, in spite of the Tenancy Act, are to a very large extent customary rents, and customary rents in many cases mean rack rents for the actual cultivators. Mr. J. H. Kerr, Secretary to the Bengal Revenue Department, thinks that the situation has been modified to some extent by the preparation of the record of rights, but it is only within the last 15 years that records have been prepared on any considerable scale, and there is still a large number of districts without a record of rights. In districts where a record of rights has been prepared, illegally enhanced rents were, as a rule, cut down to the legal limit, and the general impression is that the check, then given, to rack-renting has since prevented rents from rising to any considerable extent. In some districts, enhancements on the ground of rise of prices have been obtained from the Settlement officers or from the Civil Courts, but there are no materials from which the effects of these enhancements can be gauged statistically. The revision of the record of rights, which is to be undertaken shortly in North Bihar, should throw much further light on the question, but in the meantime it may be said that probably the landlords, as a whole, have not benefited by the rise of prices even to the extent allowed by law.

Compilation from Road Cess-returns in Bengal and Bihar.

3. A statement has been compiled from the road cess returns for selected districts in Bengal from 1890 and the total amount of rental on which road cess is assessed has been calculated by multiplying the amount of the cess by the proportion which the total rental showed to bear to the cess. These figures are not, however, of much value as the cess returns do not give any information about the area of the lands assessed and there are no means of judging how much of the progressive increase in the total rental received by landlords is due to enhancement in the rate of rents and how much to increase in the area under cultivation.

Mr. W. H. Moreland, C.I.E., I.C.S. Movement of rent rates in the United Provinces of Agra and Oudh.

4. Mr. W. H. Moreland in a recent note on the movement of rent rates* in the United Provinces has pointed out certain significant features in the upward movement of rents. He measures the rents derived from Agriculture by an all-round rent rate, which is obtained by dividing the recorded rental of a district by the area to which it relates after excluding the figures for those classes of privileged tenures which are separately recorded. The period which was taken (1904-05 to 1910-11) includes one great frost and two droughts, so that the conditions of enhancing rents were, on the whole, unfavourable. His conclusions may be summarised in the following tables :—

Division.	Rent rate.		Increase.	Annual rise per cent.
	1904-05.	1910-11.		
Meerut 4 districts	6·48	7·15	·67	1·7
Agra 2 districts	5·68	6·25	·57	1·6
Rohilkhand 5 districts	4·29	4·59	·30	1·1
Allahabad 3 districts	4·58	4·75	·17	·6
Benares 3 districts	4·74	4·82	·08	·3
Oudh 12 districts	5·83	6·18	·35	1·0

Districts in Oudh.	No. of years.	Average annual rise since settlement. Average rise.	Average annual rise between 1904-05 to 1910-11.
Lucknow	15	1·4	1·8
Unao	16	1·0	1·7
Rae Bareli	14	1·2	1·0
Sitapur	13	1·1	0·2
Hardoi	12	1·2	1·7
Kheri	11	2·8	1·1
Fyzabad	15	0·7	1·2
Gonda	7	0·6	0·7
Bahraich	12	1·4	1·1
Sultanpur	12	1·0	0·3
Partabgarh	16	0·8	0·7
Bara Banki	15	1·3	1·3

5. It would be seen that as far as Agra is concerned the present rate of increase is in accordance with what might be expected from a knowledge of the existing conditions. In regard to Oudh it is seen that the average annual rise has been at the rate of 1 per cent. or more than the maximum rise permitted by law; the Oudh Rent Act limits enhancement to 6·25 per cent. with a rest of 7 years; or, in other words, the average rise should not exceed, between the period 1904-05 and 1910-11, $\frac{6\cdot25}{7}$ or 0·9 per cent. This shows that the provisions of the Act have been disregarded in a large proportion of the individual tenancies and not merely in occasional instances. Mr. Moreland concludes that, firstly, there has been widespread enhancement beyond legal limits since the settlement in Lucknow, Bahraich and Bara Banki, and the same has occurred. to a less extent, in Unao, Rae Bareli, Sitapur, Hardoi and Sultanpur. Secondly, the rent enhancement has slackened significantly in Sitapur, Kheri and Sultanpur; it has remained more or less constant in Rae Bareli, Bahraich, Bara Banki and Partabgarh, and has increased materially in Lucknow, Unao, Hardoi and Fyzabad. It would seem that in several of these districts the landholders have got a greater share of the profits accruing from the development of India's external trade and the rise of prices.

6. Mr. Moreland is careful to note that the question whether the unrestrained enhancements already made are such as to reduce the productive power of the cultivators affected, cannot be answered by statistics. because there has not yet

been time for such effect to manifest itself; but he believes if there be any truth in the theory, that while productive power depends on security of tenures, security of tenures necessarily involves some external limitations on rents, and, therefore, the position in Oudh is so unsatisfactory according to Mr. Moreland that there ought to be no delay in taking up the question of giving the tenant the protection which he requires not merely in his own interest but in that of the landholders and even of the whole community. As regards Agra, Mr. Moreland holds that the position is more complex. A large proportion of land is held in occupancy right, the rents of which are much below the competition rate and there is no question of these rents being generally excessive; in fact, they are in some cases so low as to tempt the larger occupancy-tenants to sublet. Competition rents on the other hand have risen everywhere except in Bundelkhand, and in the western districts of the province, the rise has been very rapid. In fact, this wide divergence between occupancy and competition rents may be so great as to result in increased hostility on the part of the landholders to the occupancy system, and it may not only result in producing the evils resulting from subletting, but may even react injuriously on the productive power of the community. This increased divergence between occupancy and competition rents may be assigned to the habit of the people to regard occupancy rents as fixed for the term of settlement and to the difficulty of raising the standard of rents to follow changes in economic conditions which can be only effected on the ground of a rise in the local prices of agricultural produce. This fails very frequently because the landlord is unable to discharge the burden of proof of the rise. He has to prove not merely the fact but the extent of the rise and the difficulties in his way are obvious Mr. Moreland concludes his note on the movement of "Rent Rates" with the following remarks: "If it is considered that the divergency between occupancy and competition rents is likely to grow to such an extent as to involve risk either to the occupancy system or to the productive power of the country, action might, in theory, be taken either to check the competition-rate or to facilitate the rise of the occupancy rate. The latter course would involve either a change in legislation, substituting some more tangible criterion for enhancement for that at present adopted, or some administrative change, where a reduction in the term of future settlements bringing a more frequent reconsideration of rent rates or the provision of some machinery by which the extent of a change in prices could be more easily established. So far as can be foreseen, the rate of economic change is likely to accelerate and a greater degree of elasticity may be required in the near future if it is not already desirable; and the fact should not be overlooked that change may take place in one direction as well as another, and that a more elastic system may be needed in the interests of tenants as well as in those of landlords."

Limitations to be placed on the statistics.

7. In conclusion it must not be forgotten that there are limitations of very great importance to be placed on the figures exhibited. The disturbing factors are extremely great. For example, there is in Bengal and Oudh what is called *Salami* or Nazarana which corresponds to the advances which Janmis—the proprietors of Malabar—secure from their tenants. In a word, there is a system in vogue which may be called forehand renting. When a man takes a demise of land he gives an advance to the proprietor. Again, when the lease expires, a heavy renewal fee is exacted by the Janmis and, in addition to the renewal fee, other fees are collected more or less corresponding to what is known in Bengal as abwabs. The result is that the Janmis do not depend so much on the actual rent which they get every year as on these heavy payments at stated intervals. The rental, therefore, that would be of the greatest value, would be rentals exacted from their sub-tenants (the actual cultivators), but no figures are available with regard to these rents.

APPENDIX M.

A Brief History of the Indian Currency System.

(*Chapter III, page 28, para 77.*)

Influence of the change from a silver to a gold standard on prices.

1. The change of the Indian currency from a silver to a gold standard has played an important part in attracting foreign capital into India, in bringing her into closer relationship in international commerce with other gold standard countries and in developing her resources. All these are factors which must have exercised great influence on the general price level in this country. Some also hold that the rise in Indian price levels is largely due to the enormous amount of silver coinage in India during the last decade. It is, therefore, necessary to give a brief account of the history of coinage in India and to explain the circumstances that led to the abandonment of the silver standard and the salient points of the system that has taken its place, as well as to give statistics of the total amount of currency in circulation in India for a series of years.

Different coins current in India prior to 1835 when the present rupee was made the standard coin.

2. In the early part of the last century, no uniform measure of value existed in British India. Some parts (*e.g.* Madras) maintained a gold standard and currency ; elsewhere, as in Bengal, a silver standard obtained, with gold coins in concurrent circulation. Throughout India the coins, whether of gold or of silver, differed in denomination and in intrinsic value even within the same district. In 1818 the silver rupee was substituted for the gold pagoda as the standard coin of the Madras Presidency. On the 31st August, 1835, the only legal tender rupees in British India within the local limits specified in the regulations prescribing the coinages were the Bombay, Madras, Farakkabad, Sonat, and Sikka rupees. Act XVII of 1835, which took effect from the 1st September of that year, introduced the present silver rupee as the sole standard measure of value throughout British India. Gradually the Sikka, Farakkabad, Bombay, Madras and Sonat rupees were discontinued as legal tender and were withdrawn from circulation.

Gold coins in India.

3. Though Act XVII of 1835 enacted that "no gold coin shall thenceforth be a legal tender of payment in any territories of the East India Company," it still authorised the coining of gold mohurs as the equivalent of 15-rupee pieces. By a proclamation of 13th January 1841, officers in charge of public treasuries were authorised freely to receive these coins at their face values in payment of Government dues. The extensive discoveries of gold in Australia had the effect of diminishing its value relatively to silver, and holders of gold coin naturally availed themselves of obtaining at the Government treasuries a larger price for these coins in silver than they could in the market. Consequently the privilege was withdrawn on the 1st January 1853, after which no gold coin was to be received in any public treasury within the territories of the East India Company. In November 1864, on the representation of the several Chambers of Commerce, sovereigns and half sovereigns were authorised to be received at Rs. 10 and Rs. 5 respectively. They were, however, not made legal tender as between private individuals. In October 1868, the rate for receipt of sovereigns and half sovereigns at public treasuries was raised from Rs. 10 and Rs. 5 to Rs. 10-8-0 and Rs. 5-4-0 respectively.

Demonetisation of silver in Europe.

4. In December 1871, Germany, where there previously existed a silver standard, took steps towards the establishment of a gold standard and completed the operation in July 1873. She was followed by Denmark, Sweden, Norway and later by Holland. In 1874 the Latin Union—France, Belgium, Switzerland and Italy—suspended the free coinage of silver, and for the first time gold and silver began to be used as standard money in the civilised world without any effective tie between them.

Fall in gold value of the rupee.

5. From 1871, the gold price of silver and the Indian exchange on London fell steadily and largely, and it became evident that the gold price of silver was like

the gold prices of other commodities practically left for the first time in history without regulation and free from the manipulation of Governments. Formerly a very great part of the world adhered to the bi-metallic system which made both gold and silver legal tender and which established a fixed relation between them. In consequence, whenever the relative value of the two metals altered in any part of the world, these countries acted as equalising agents. They took the metal which fell and sold the metal which rose; and thus the relative value between the two was brought back to its old point. With the suspension of the free coinage of silver by the Latin Union, this state of affairs ceased and silver and gold became in relation to one another simple commodities. With the fall in the gold price of silver, there was simultaneously a fall in the gold price of all commodities generally. In dealing with the question of the fall of the gold price of commodities, Sir Robert Giffen came to the conclusion that "the fall was largely due to the greatly increased demand for gold in recent years and to an actual insufficiency of the current supply of gold for the current demands of gold-using countries." Lord Goschen carried somewhat further the line of argument adopted by Sir Robert Giffen. On the other hand it was contended by eminent authorities that the fall in prices was due to increased and cheaper production, to the opening up of new countries, to increased facilities for transport, the reduction of freights as well as to increased industrial competition which tended to reduce profits.

"Journal of the Statistical Society" for January 1879.

"Banker's Magazine" for April 1883.

Trade depression in countries with a gold standard.

6. Whatever the causes of the general fall in gold prices might have been, it was accompanied by a severe and long-continued trade depression in countries using the gold standard, and in 1885 a Royal Commission was appointed in England to enquire into and report upon the extent, nature and probable causes of the depression prevailing in various branches of trade and industry.

Report of the Royal Commission on the Depression of Trade.

7. This Commission, while enumerating a number of important considerations having no connection with the standard of value which appeared to account for the fall in prices and depression of trade and industry, gave the leading place among such influences to the appreciation of the standard of value and held that it was a matter deserving of the most serious independent enquiry. As a result of this recommendation, a Royal Commission was appointed in 1886 "to enquire into the recent changes in the relative values of the precious metals as shown by the decrease in the gold price of silver." The report of the Royal Commission was not followed by results of any practical value. The re-establishment of bimetallism was found to be impossible, except by universal or almost universal international agreement, and such an agreement could not be obtained.

Continued fall in the Exchange.

8. It was, however, clear that the fall in the gold price of silver largely coincided with the fall in the gold prices of commodities and that another fall in gold prices would be accompanied by a further fall in the Indian exchange. It was also clear that there would be either a continued progress in the direction of demonetising silver and substituting gold, or that the world would revert to the old system of double legal tender. In the former case, Indian financial difficulties would be greater in the future than they had been in the past. In the latter case, India might have to pass through a severe financial and commercial convulsion caused by other nations attempting to restore the old ratio between silver and gold of 15½ to 1. In the interests of India, a sudden reversion to the old ratio of 15½ to 1, as well as a continuous and progressive demonetisation of silver accompanied by a fall in the gold value of the rupee to an unknown and unlimited extent, were alike to be deprecated. In 1890, there was a material rise in the Indian exchange which was largely due to speculation engendered by the Sherman Act passed by the United States of America providing for the purchase of 4,500,000ozs. of silver every month. This was, however, quite ineffective in bringing about any permanent relief owing to the great increase which was taking-place at

the same time in the production of the white metal. The rise in the price of silver and in the Indian exchange, due to this speculation, lasted for only a very short time. The highest rate obtained by the India Office for bills in 1890-91 was 1*s.* 8·94*d.*, and the lowest 1*s.* 5*d.* For a time, trade between England and India was nothing more than gambling. The fluctuations in exchange determined the question of profit or loss. The rise in the gold price of silver and the subsequent fall were not accompanied by a simultaneous fall and rise in all prices and wages measured in silver. The wholesale prices of the articles of export felt the influence of the rise in silver at once and this caused great trade depression. The appreciation of silver did not cause a high rate of discount and was not accompanied by a scarcity of silver in the centres of trade. On the contrary, the accumulation of silver in the Indian banks was unprecedented and the rate of discount was the lowest that had ever been known. All hopes of an international agreement fixing a proportion between the values of gold and silver had to be abandoned when the Brussels International Monetary Conference dissolved in 1892 without arriving at any result, and it became evident that the United States would soon have to choose between abandoning the purchase of silver and drifting into a silver standard, and there was little doubt that when the time came to make a final decision they would give up the attempt to bring silver to its old position and would adhere to the gold standard.

Herschell Committee's recommendations. Closing of the mints to open coinage of rupees.

9. The world was thus gradually drifting towards a universal gold standard and India was confronted with the question whether to continue on the silver standard and accept the consequences, whatever they might be, or choose the heroic and hazardous remedy of changing her standard of value from silver to gold. In view of the serious evils with which they might at any time be confronted, if matters were left as they were, the Government of India came to the conclusion that the best course would be to close the Indian mints and adopt measures having for their object the introduction of a gold standard into India, and accordingly submitted proposals for the purpose to the Secretary of State for India. In October 1892, the Secretary of State referred these proposals to a Committee of which the Chairman was the late Lord Herschell. On the recommendation of this Committee, an Act was passed on the 26th June, 1893, which provided for the closing of the Indian mints to the unlimited coinage of silver and for the issue of rupees at these mints in exchange for gold at the rate of 1*s.* 4*d.* per rupee. The settlement of the permanent rate of exchange between gold and the rupee, the making of gold coins legal tender, and the other measures necessary for the final and effective establishment of a gold standard in India were left to be provided for by future legislation in the light of the experience that would be gained by the study of the effects that followed the closing of the mints. The closing of the Indian mints did not, however, immediately arrest the downward course of the Indian exchange, which, however, did not fall in proportion to the fall in the gold price of silver. The Sherman Act was repealed by the United States in November 1893, and the imports of silver into India became very heavy, amounting, in the year, to nearly 54½ million ounces, valued at Rs. 13,71,98,000. The sterling value of the rupee which had averaged 14·984*d.* in 1892-93 dropped to 14·546*d.* in 1893-94 and to 13·1*d.* in 1894-95.

Fowler Committee's recommendations.

10. After 1894-95, however, there was a steady rise, but it was not until 1897-98 that the average value of the rupee exceeded 1*s.* 3*d.* This, however, failed to create in the public mind a sufficient confidence in the monetary system of India, and in 1898 another Currency Committee was appointed under the presidency of Sir Henry Fowler (Lord Wolverhampton) to consider whether the provisional arrangements of 1893 should be replaced or completed. While the Committee was sitting, the Indian exchange was rising and at last reached 1*s.* 4*d.* and £2,230,000 in gold was paid into the Indian treasury in exchange for silver

rupees, notwithstanding an increase in the drawings of the Secretary of State for India. The Committee thereupon recommended that the permanent rate of exchange should be fixed at 1*s.* 4*d.* for the rupee and that gold should be made legal tender. They also recommended that the profits made from the coinage of new rupees should be used for forming a gold fund to secure the convertibility of rupees into sovereigns, and that the Indian mints should be opened for the coinage of gold. The first two recommendations were put into effect by the Government of India on the 15th September 1899, and the rupee was definitely linked on to the sovereign at the fixed rate of Rs. 15 to the sovereign. The sovereign and the half sovereign were made legal tender to an unlimited extent and it was resolved to issue notes (or which is the same thing, rupees) in lieu of sovereigns and half sovereigns for any amount: no legal obligation was, however, undertaken to give gold in exchange for rupees.

Accumulation of gold and depletion of rupees in the currency reserve—Necessity for coinage.

11. Under the new arrangement, gold tendered for exchange into rupees was received as a portion of the Paper Currency Reserve, from which the rupees required were also issued. As soon as the Act was passed, gold began to pour into India, and by the end of March 1900 the Gold Reserve of the Paper Currency Department rose to £7,500,000. The Silver Reserve at the same time fell steadily, till at the end of 1900 it reached the dangerously low figure of 3·7 crores only. The stock of rupees thus became quite insufficient to meet the demands for trade, and it became absolutely necessary for the Government of India to recommence the coinage of rupees. The difficulty was successfully met by the coinage of 17 crores of new rupees during the year 1900-01, and gold to the value of £4,500,000 was remitted to London to pay for the purchase of the silver required for the new coinage. In the same year the Gold Standard Reserve or, as it was then called, the Gold Reserve Fund, was created with the profits of the rupee coinage. The demand for rupees and, with it, the imports of gold continued so heavy during the next few years that the Government were able to meet it only by working the mints under very high pressure.

Coinage of rupees.

12. The following table shows the new rupees coined during the years 1900-01 to 1907-08, as well as the remittances of gold made to London from India:—

Coinage of Rupees (in lakhs).

1900-01	17,15	1904-05	10,88
1901-02	4,95	1905-06	19,60
1902-03	11.27	1906-07	25,37
1903-04	16,17	1907-08	17,33

Remittances of Gold to London.

	£		£
1900-01	4,500,000	1904-05	5,600,000
1901-02	2,002,000	1905-06	7,000,000*
1902-03	500,000	1906-07	250,000
1903-04	4,261,000	1907-08	*Nil*

* Represents remittances for investment of the Currency reserve in England and amount to be held in the London Currency chest.

Holding of a portion of the Gold Standard Reserve in rupees in India.

13. For more than seven years the demand for rupees continued to be so steady and heavy that it was decided to hold £4,000,000 of the Gold Reserve Fund in rupees, as a special reserve to meet sudden demands for the latter. This gave a reserve of 6 crores of rupees, but, of course, the available reserve in gold was reduced to the same extent. The designation of the Gold Reserve Fund was also altered to the Gold Standard Reserve.

Opening of a Currency chest in London and sale of Council Bills in excess of Secretary of State's requirements.

14. As gold did not circulate freely in India, it would have been wasteful to force the public to import gold into India to be exchanged for rupees, when the gold could only be utilised by being transmitted to London. It was accordingly decided that the Secretary of State should sell bills on the Indian treasury irre-

spective of his own requirements and receive, in exchange for them in London, the gold which would otherwise have been imported into India. Power was also taken to hold a portion of the Indian Currency Reserve in London either in the form of gold or of gold securities, so as to enable this portion to be utilised for the purchase of silver required for new coinage or to meet the current requirements of the Secretary of State, an equivalent amount in rupees being simultaneously transferred from the Indian treasury to the Paper Currency Reserve in India. The Indian Paper Currency Reserve having always been much more than sufficient to secure the convertibility of the Paper Currency under any contingency that was likely to arise, the holding of a part of the Reserve of the Paper Currency Department in London in gold is justifiable, as it is in the London market that the gold would, in case of need, be required.

Crisis in India—Sale of demand drafts on London.

15. The demand for rupees received a sudden check in August 1907. The exports of jute dropped heavily and the autumn rains being in marked defect over a considerable part of the country, especially in the wheat-growing provinces, it became evident that there would be severe scarcity in northern India and that the exports of wheat would be insignificant. In addition to this a great financial and commercial crisis developed in the United States in October of that year. As a consequence, exports declined heavily without any corresponding decline in the imports, the balance of trade in favour of India was reversed, exchange fell, the Secretary of State stopped selling bills, and there was a large demand for gold in India for export abroad. The Gold Reserve in India was soon practically exhausted and the Government of India decided in March 1908 to sell sterling drafts on London at a fixed rate of 1*s*. $3\frac{29}{32}$*d*. During the five months, April to August 1908, sterling bills were sold to the total amount of £8,058,000. The sale-proceeds of the bills in rupees was withdrawn from circulation and was paid into the silver branch of the Gold Standard Reserve in India, the Secretary of State making corresponding withdrawals of gold from the reserves in London. No less than 12 crores of rupees were thus withdrawn from circulation in India and paid to the Gold Standard Reserve, while securities in the Gold Standard Reserve in England to the value of £8,497,000 were sold. The Currency Reserve in gold in England was also reduced from £7,000,000 to £1,500,000, chiefly to meet the requirements of the Secretary of State. The crisis passed away in September 1908 but the gold assets reached their lowest point on 22nd January 1909, when they amounted to about £9,000,000 only, the total drain in gold having amounted to no less than £17,750,000. There was of course a correspondingly large accumulation of silver rupees in the reserves in India, and since then for more than three years the Government of India were able to meet the trade demands for rupees without any new coinage (except, of course, the re-minting of withdrawn coins) until a few months ago, and up to the end of December last 12,43 lakhs of new rupees have been coined in the mints.

Rupee coinage in India self-regulating.

16. It has thus been possible to render the Gold Exchange Standard effective, or, in other words, to keep exchange at the level decided upon, and to secure that the currency should be self-regulating at that level, only by undertaking an obligation to supply importers of gold with rupees in exchange for their gold, and conversely to meet a demand for remittances from India by giving in exchange for rupees, tendered in India, either gold from the Government reserves or, what is the same thing, bills on the Secretary of State in London payable in gold. Thus, notwithstanding the closing of the Indian Mints to the free coinage of silver, the rupee circulation in India is still self-regulating, as it would be increased automatically by persons bringing gold and getting it converted into rupees which

would be supplied either from the Rupee Reserve of Government or, when that proves insufficient, by the coinage of new rupees from silver purchased with the gold received. On the other hand, the circulation of rupees would be automatically contracted. If ever they become redundant, they would be returned into Government reserves in exchange for gold which could be exported or, what would amount to the same thing, in exchange for gold bills on the Secretary of State in London.

Guarantee for the maintenance of the Gold Standard in

17. The soundest guarantee for the permanent maintenance of the Gold Standard in India is that the rupee currency is, in ordinary times, just sufficient to maintain the exchange at a level of 1*s.* 4*d.* per rupee, and that no increase can be made to the total circulation except at a cost of 1*s.* 4*d.* for each rupee. There is no possibility of the exchange rising materially above 1*s.* 4*d.* so long as the Secretary of State is prepared to sell drafts on India at a suitable rate of exchange and the Government of India to receive gold at 1*s.* 4*d.* for the silver rupee. The reserve maintained in the form of gold and gold securities can, on the other hand, be used to prevent exchange falling materially below 1*s.* 4*d.* and the rupee currency becoming redundant. The Government of India could sell bills on London —which would be tantamount to an increase of exports and would thereby tend to maintain exchange. The equivalent of these bills in rupees would be withdrawn at the same time from circulation and the rupee currency in India would be contracted. The Secretary of State for India could also meet his requirements by withdrawing gold from the Paper Currency Reserve or from the Gold Standard Reserve instead of by drawing bills on India, and this reduction in the amount of bills drawn would be equivalent to an increase of an equal amount in the exports from India, and as the Government of India would have simultaneously to place an equivalent amount in rupees in the Indian Paper Currency Reserve or in the Indian portion of the Gold Standard Reserve there would be a corresponding contraction of the rupee currency in India. The process is practically the same as that which takes place between two countries, both of which have a gold standard and a gold currency.

Calculation of the amount of rupees in circulation.

18. A statement is published showing the amount of rupees coined year by year from 1835 up to date (Statement IV). From this statement, however, it is not possible to determine the amount of rupees in active circulation in India as firstly, prior to the closing of the mints in 1893, the bullion and the face value of the rupee being almost the same, a very considerable number of rupees used to be melted down for making ornaments and for use in arts; secondly, a considerable quantity of rupees has, year after year, been withdrawn from circulation by the Government of India and recoined: in 1878, all coins issued prior to 1835 were ordered to be withdrawn; the mintage of 1835 were withdrawn in 1896, and that of 1840 (*i.e.*, rupees coined between 1840 and 1862, all of which bore the year 1840) was withdrawn in 1901: the last two classes of coins are still coming into Government treasuries in small quantities and are being re-coined. Thirdly, a number of rupees is exported by sea and across the frontier to other silver-using countries: fourthly, a considerable amount is hoarded in India itself: and fifthly, some quantity is otherwise lost. It is thus a matter of exceptional difficulty to estimate the amount of rupees in actual circulation. But the difficulty was solved, however imperfectly, by Mr. F. C. Harrison, C.S.I., I.C.S, who calculated the circulation of rupees somewhat on the method adopted by Mr. Jevons. In 1900 Mr. W. S. Adie, I.C.S., suggested some improvements in Mr. Harrison's method. Both Messrs. Harrison's and Adie's methods are explained in detail later on, and, following Mr. Adie's system, I have brought the calculations up-to-date.

Circulation of Currency Notes.

19. A statement is published showing the amount of Currency Notes in circulation, year by year, and the reserve in gold and silver coin or bullion and securities of

the Government of India or of the United Kingdom held against it. The amount of this reserve has been gradually raised. In 1890, the Government was empowered to raise the portion of the reserve which may be invested in securities from Rs. 6,00,00,000 to Rs. 8,00,00,000, and the invested reserve was actually raised to Rs. 7,00,00,000 in December 1890 and to Rs. 8,00,00,000 a year later, *i.e.*, in December 1891. In 1896, the limit was further raised to Rs. 10,00,00 000 and in 1905, to Rs. 12,00,00,000 ; a part not exceeding Rs. 2,00,00,000 being allowed to be invested in sterling securities. In August of that year, Rs. 2,00,00,000 of the reserve were invested by the Secretary of State in consols and exchequer bonds. In 1908-09 the exchequer bonds were replaced by consols. In March 1911, the limit was further raised to Rs. 14,00,00,000, of which not more than Rs. 4,00,00,000, was to be held in England invested in sterling securities. The other changes in connection with the issue of Currency Notes in India since 1890 have been as follows :—

Issue of currency notes in exchange for gold.

20. In 1893, when the Indian mints were closed to the unrestricted coinage of silver, the Currency Department was authorised, as already mentioned, to issue Currency Notes in exchange for gold coin or bullion to any amount, the law until then having provided only for the issue of Notes against silver. In 1898, Government was authorised, as a temporary measure, to issue Currency Notes on the security of gold deposited in England. This authority was extended for another term of two years in 1900 and the Secretary of State was also authorised to expend the gold so deposited on the purchase of silver for remittance to India for coinage. These arrangements were made permanent by Act IX of 1902.

Gold Note Acts, 1898 and 1900.

21. The Gold Note Acts, of 1898 and 1900, authorised the Government of India to hold a part of the metallic portion of the Currency Reserve in gold coin or temporarily in silver bullion in London instead of in India. This authority was not, however, availed of to any large extent until 1905, when a currency chest was opened in London and a sum of £6,000,000 was remitted from India, and a further sum of £1,045,000 was transferred to the chest during the year from the proceeds of Council bills. Act II of 1910, gives Government full power to hold the metallic portion of the Reserve or any part of it either in London or in India, subject only to the condition that rupees should be kept only in India and not in London. On the 31st of December, 1912, the London Currency Chest held £7,300,000 on behalf of the Currency Reserve.

Movement of Currency to Finance Trade.

22. In this connection it seems desirable to give some explanation of the part taken by the Government in the movement of the Indian monetary machine and of the different sources from which currency requirements of the country are supplied and their interconnection. Government takes the chief part in distributing the currency from the centres of trade to the interior ; it possesses numerous treasuries, sub-treasuries, and currency agencies, and, except where treasuries are managed by the Presidency Banks, it keeps its own cash balances. At each harvest lakhs and lakhs of rupees are sent up-country from the seaboard to finance the jute harvests in Bengal, the rice harvests in Burma, the cotton harvests of Bombay and the Central Provinces, the cotton and groundnut harvests of Southern India, or the wheat and seed harvests of Northern India. Some portion of these rupees are put away by the peasant in good years or converted into ornaments, while the portion which is not absorbed finds its way back to Government treasuries in payment of revenue, to tills of railway stations or the branch banks in inland towns. From these the currency flows back to the ports of Calcutta, Bombay, Madras, Karachi, and Rangoon. Government plays no small part in the ebb and flow of currency. The revenue is collected at the treasuries of each of the 253 districts into which India is divided and the surplus, after local demands have been met, is withdrawn to reserve treasuries at the head-quarters to meet trade demands in the shape of Council bills. During harvest, a considerable part of the surplus of the treasuries is made over to

banks, merchants and others who are glad to take it over by paying the equivalent with a nominal premium at the head-quarters. It may be interesting to note in this connection that a great deal of currency stops up-country, not that it cannot easily get down but because it is needed where it is. Some portion of the treasury surplus is also transferred to the local currency chests, a corresponding amount being transferred at the head-quarters from the Currency Reserve to Government cash balances. In this way the necessity of sending remittances in coin to head-quarters is largely avoided, and as much silver as possible is retained up-country until it is possible to be absorbed by trade. The law relating to the Paper Currency Reserve requires the whole of the value of notes issued, less a fixed sum of 14 crores of rupees which is invested, to be maintained as a metallic reserve, but there is no limitation as regards its locale. It is scattered all over the country in currency chests, and transfers through the Currency Department are the recognised means of supplying the requirements both of Government itself and of trade. A merchant, for instance, requiring funds at Mymensing, can obtain it from the currency chest there by paying the equivalent with a small premium into the Currency Reserve at Calcutta. Thus the Currency Reserve though it is not available for the general purpose of Government, being the deposit held against the Note circulation, plays a very important part in the distribution of the circulating medium between the different parts of the country, and to a considerable extent obviates the necessity of frequent remittances of coin.

23. Then there is the Gold Standard Reserve. The great bulk of this reserve is held in England, but a portion, amounting ordinarily to 6 crores of rupees, is held in India in rupees, as a reserve to meet a sudden demand for increased coinage. Both the English and Indian branches of this reserve may be utilised to meet demands of trade. The Secretary of State may receive money into his branch of the reserve and the equivalent would then be released from the silver branch of the reserve in India and be made available for trade.

Lines of defence against fall in Exchange.

24. Since Government treasuries hold, as a rule, coins just sufficient for the ordinary requirements of the Government and the reserve treasuries at the head-quarters hold the whole of their balances in Currency Notes, the only store of coin available to meet demands for currency is in the Currency and the Gold Standard Reserves. The Currency Reserve also forms the first line of defence of the gold value of the rupee. As already mentioned, it is a convenient collecting place for gold coin which happens to be imported in larger quantities than the Indian markets can conveniently absorb at once, and, so long as it is there, it is available for shipment, if it be required to support exchange. The gold, therefore, guarantees the convertibility of rupee notes and at the same time guarantees the convertibility of the rupee into gold as a reinforcement of the Gold Standard Reserve, and thereby the stability of the Indian exchange—a double function which secures considerable economy and affords an illustration of the ingenuity which has been devoted to the Indian currency system. So also with rupees: the double function of rupees held in the Currency Reserve is to guarantee Notes and to furnish a reliable index of the public demand for currency. A decline in this reserve always gives warning of the necessity of fresh coinage.

Economy in the use of Currency.

25. A great economy in the use of currency is possible in India in consequence of the trade demands for currency in different parts of the country falling in different parts of the year, and also because the trade demands coincide to some extent with the collection of Government revenue in treasuries. June and July are the slack months of the year for trade, but heavy collections of land revenue are made in the United Provinces and the Punjab in those months, and these are collected and transferred to Calcutta through currency or otherwise to meet

the demands of the jute trade in Bengal which last from August to October. With November the large demand for jute practically ceases and the demand for cotton in Bombay begins. December opens with a demand for cotton in Southern India and towards the close of the month the movement of coin for the Burma rice crop begins. There is also some demand for financing the autumn crop in Northern India. January to March are months of heavy revenue collections, the average collection of land revenue being about 6 crores of rupees each month, but the trade demands are heavier still, the largest amount being required in Burma, Bombay and Northern India. In March, the revenue collections generally overtake the issues for trade and there is usually a return of currency to the Government reserves. In April, trade demands continue in Southern India for cotton and groundnut, and in Northern India, there are heavy demands for wheat and seed crops, but large amounts are paid into the treasuries in Burma and Bengal in payment of revenue. In May, trade demands in Northern and Southern India continue, but at the same time heavy land revenue collections fall due in the United Provinces.

Volume of Currency in each circle cannot be estimated.

26. It would be interesting to find out how the total increase in the volume of currency for the whole of India has been distributed among the different circles, but it has not been found possible to collect any reliable data that would lead to any satisfactory conclusions in regard to this matter.

CALCULATION OF THE AMOUNT OF RUPEES IN ACTUAL CIRCULATION, YEAR BY YEAR.

Mr. Harrison first estimates the amount of rupees in circulation.

27. An attempt to make a rough estimate of the number of rupees in actual circulation in India, year by year, was first made in 1894 by Mr. F. C. Harrison, C.S.I., I.C.S.

Rupee Census.

28. Before explaining Mr. Harrison's method it may be mentioned that since 1875 a census of rupees is taken every year in May. In all Treasuries and Currency Offices throughout India a bag or two of rupees is examined in detail and the percentage of each year's issue to the total number of coins examined is thus ascertained. These percentages are then averaged for each province and subsequently for the whole of India. It is assumed that the percentages so ascertained will represent the percentages of the several years' issues to the total stock of rupees in circulation. Mr. Harrison utilised these rupee censuses for the purpose of estimating the stock of rupees in circulation. The argument of Mr. Harrison, whose method was borrowed from Jevons, was as follows :—

Mr. Harrison's first method.

29. If from the census figures it appears that coins of any year 'A', formed a percentage (say x %) of the total coins examined in any year 'B' the total circulation in year 'B' could not exceed $\frac{100}{x}$ times the number of rupees coined in the year 'A.' Had there been no loss due to any causes in the number of rupees coined in the year 'A' during the period that elapsed between the years 'A' and 'B' $\frac{100}{x}$ times the coinage of year 'A' would represent the total circulation in the year 'B.' There is, however, some loss involved, and this should be allowed for. Mr. Harrison observed that the mintage of any year generally attained the maximum percentage in the second or third year after coinage, and he argued that it should be assumed that the whole of the rupees coined in any year were put into circulation in the year in which the mintage of that year attained the maximum percentage. In subsequent years there was a reduction in the percentages, and Mr. Harrison argued that this reduction was due to the loss in the number of rupees through various causes. He took for a series of mintages the geometric mean of the losses in percentage in the two years succeeding the year of maximum percentage; he then took the arithmetic mean of all these geometric means as representing the annual loss in number of rupees. He also believed that the rates of the decrement in the years preceding and suc-

ceeding the year of the maximum percentages should be equal, and, allowing for the losses at this rate, he calculated the number of rupees of any given year's mintage in circulation in the year of attainment of maximum percentage, and multiplying this by $\frac{100}{x}$ he arrived at the total circulation.

Mr. Harrison's second method.

30. In 1897, another method was adopted by Mr. Harrison. The 1835 rupees were in 1896 ordered by the Government of India to be withdrawn from circulation. Such withdrawals in any year and also the reduction in the percentages of such issues were known from the rupee census. From these data the calculation was made as follows :—If 'A' be the number of 1835 rupees withdrawn from circulation by Government in any year, and if y represent 1835 rupees in the census of that year, the previous year's percentages being x, the total circulation in that year is $\frac{A}{x-y} \times 100$. The results obtained by this method agreed generally with the former.

Mr. Adie's improvement.

Vide Appendix to the Report on the Operations of the Paper Currency Dept., 1899-1900.

31. In 1900, Mr. Adie made an improvement on Mr. Harrison's method. He argued that Mr. Harrison's results were based on the percentage of a single year, and as the census of rupees, however carefully taken, could not be held to have been absolutely correct, it was not desirable to use such imperfect data for only one year. Better results could be arrived at by taking the average of the percentages of a series of years. Mr. Adie first arranged the percentages of the rupee censuses in a statement, the vertical columns being assigned to the years of issue and the horizontal lines to the years for which the amount of rupees in circulation had to be calculated (*vide* statement I), and he also arranged, in a similar manner, the results obtained by dividing the mintage of any year by the several percentages of that mintage and multiplying the result by 100 (statement II). Had the rupee censuses been correct and had there been no loss in the number of rupees through any cause whatsoever, the figures in statement II would have represented the total circulation of the several years. But the rupee censuses are imperfect and there is an annual shrinkage in the number of rupees and hence the table shows such diverging results. Mr. Adie assumed with Mr. Harrison that the mintage of any year was completely put into circulation in the year in which the maximum percentage was attained ; the rate of wastage of rupees shown by Mr. Harrison was also adopted. Mr. Adie was, however, careful to point out that Mr. Harrison's method of calculating an average decrement was partially incorrect, but as the difference was not very large and as he wished to compare his results with Mr. Harrison's he took the latter's figure. To estimate the circulation of any year, Mr. Adie took from Table II five consecutive figures commencing with that year's mintage which had attained the maximum percentage of the year under consideration, reduced each figure for the yearly wastages, and then worked out their geometric means. This mean was the total circulation.

32. A new method was also introduced for calculating the total circulation in years for which Mr. Harrison's and Mr. Adie's first method, already described, had failed owing to there being no mintage in the two or three previous years, and no year's mintage having attained the maximum percentage in the years in question. Mr. Adie, therefore, thought that although the percentages of much earlier mintages could not be taken as the basis of calculation (wastage for a long period vitiating such calculations) they could very well be used to determine the ratio between the circulation of two years. Thus if x be the percentage in the year 'a' of the mintage of a year, n years before 'a,' and 'A' the number of rupees of that mintage, y the percentage in the year β of the mintage of a year, n years before year β 'B' being the number of rupees of that mintage, then the circulation of year 'a' $= \frac{A \times 100}{x} \times (1-r)^n$. where '$r$' is the rate of wastage per annum. and the circulation of year $\beta = \frac{B \times 100}{} \times (1-r)^n$.

33. These two absolute results have to be rejected as the factor $(1-r)^n$ will introduce a very large amount of error '*n*' being large and '*r*' not being free from error. We, however, get the relation $\frac{\text{Circulation of year } a}{\text{Circulation of year } b} = \frac{A-Y}{B-X}$.

As this relation does not involve '*r*' we may adopt this relation in finding out the circulation of any year when that of the other is known. Mr. Adie did not, however, take the results of a single year for this purpose, and as, in his first method, took the geometric mean of a series of years' mintages. Mr. Adie's results are shown in Table III.

Estimates of circulation brought up to date.

34. Mr. Harrison's calculations do not extend beyond 1892 and Mr. Adie's extended only up to 1899. The circulation for subsequent years has been calculated on Mr. Adie's method and brought up to 1912. It will be noted that the adoption of Mr. Harrison's rate of wastage by Mr. Adie has given rise to criticism, because conditions changed after the closure of the mints in 1893; and as loss by melting could not for any length of time after that date be held to be one of the causes of the disappearance of rupees, a different rate of wastage should be applied after 1893. I have calculated the rate of decrement after 1893 following Mr. Harrison's method and applying the corrections proposed by Mr. Adie. It is perhaps surprising that the result does not differ materially from that of Mr. Harrison's, being ·0624 as against Mr. Harrison's ·0677. After the closure of the mints, rupees were obviously no longer, to any considerable extent, melted down, and with the increased development of banking, the quantity of rupees hoarded is very much smaller than formerly. The loss by wear and tear and by other minor causes cannot account for the large amount of wastage every year. Exports by sea and land and replacement in people's hoards of old rupees by new must be held to account for the rate of wastage in the first few years of issue being the same as that before the closing of the mints. We have not, however, got the statistics of the exports of rupees by sea prior to the year 1894-95 and it is accordingly impossible to prove that such exports have actually increased. Our trade with East Africa, the Straits Settlements, and the countries across the inland frontier has increased and it seems probable that Indian rupees are going to Native States and also to trans-frontier countries like Tibet. With the development and increased prosperity of the Native States, along with British India, a large amount of British coins is absorbed in those States, now that the system of currency in the majority of these States is the same as that in British India.

Rate of wastage of rupees in the first few years of issue.

Improvement on Mr. Adie's method.

35. I have made an improvement on Mr. Adie's second method of calculating the total circulation for years to which Mr. Harrison's method and Mr. Adie's first method could not be applied. To obtain a ratio between the circulations of any two years, Mr. Adie, has taken figures from table G for a series of 5 years. If this series of five years be shifted, either forward or backward, the same results would not be obtained, and to minimise the degree of error in this relation a large number of series, each of five years, was taken. A geometrical mean of such results was then calculated showing the relation between the circulation of any two or more years. Messrs. Harrison and Adie's figures include all rupees held by the Currency and Treasury, except that portion of the rupees coined in the two or three years immediately preceding the year in question, which had not till then been put into circulation. Allowance has been made for this amount, and the figures calculated by me in statement III represent the total amount of rupees in circulation in the country, excluding, of course, the quantity of rupees permanently hoarded.

Statement I.

Results of the Rupee Census.

Years of Coinage.

Years.	1912	1911	1910	1909	1908	1907	1906	1905	1904	(a) 1903	1901	(b) 1900	1898	(c) 1897	1893	1892	1891	1890	No. of Item.
1912 .	·179	·182	1·164	1.128	1·439	8·877	10·907	4·970	5·593	3·787	6·392	4·046	·386	·111	2·414	3·185	1·975	3·535	1
1911 .		·063	1·078	·990	1·391	8·524	10·701	5·120	5·740	3·793	6·467	4·016	·456	·130	2·414	3·199	2·050	3·618	2
1910 .			·341	1·114	1·527	8·554	10·705	5·026	5·768	3·827	6·546	4·206	·338	·185	2·457	3·241	2·010	3·672	3
1909 .				·329	1·349	8·021	10·417	5·570	6·055	4·183	6·684	4·181	·413	·164	2·470	3·214	1·995	3·563	4
1908 .					·657	8·961	11·080	5·818	6·565	4·302	6·669	4·195	·343	·164	2·479	3·117	2·003	3·522	5
1907 .						3·060	12·562	6·288	6·809	4·567	7·069	4·433	·328	·134	2·684	3·378	2·113	3·865	6
1906 .							4·065	7·546	8·133	5·461	7·776	4·994	·422	·154	3·102	3·905	2·384	4·329	7
1905 .								1·917	8·236	6·807	9·058	5·653	·395	·126	3·354	4·204	2·615	4·747	8
1904 .									4·162	7·758	9·422	6·031	·506	·179	3·520	4·511	2·739	4·937	9
1903 .										1·137	9·781	6·788	·410	·146	4·065	4·946	3·057	5·670	10
1902 .											6·706	7·025	·405	·120	4·023	5·142	3·174	5·629	11
1901 .											3·038	6·977	·441	·158	4·186	5·109	3·155	5·618	12
1900 .												1·138	·419	·072	4·754	5·855	3·566	6·477	13
1899 .													·09	..	4·79	5·83	3·54	6·35	14
1898 .													·08	·05	4·8	5·8	3·6	6·7	15
1897 .															5·1	6·0	3·7	6·9	16
1896 .															5·19	6·39	3·63	6·47	17
1895 .															5·42	6·82	3·87	6·03	18
1894 .															4·96	7·23	4·06	6·27	19
1893 .															2·77	6·91	4·0	6·44	20
1892 .																1·43	4·42	6·19	21
1891 .																	3·38	4·53	22
1890 .																		2·44	23
1889 .																			24
1888 .																			25
1887 .																			26
1886 .																			27
1885 .																			28
1884 .																			29
1883 .																			30
1882 .																			31
1881 .																			32
1880 .																			33
1879 .																			34

Statement II.

Years of Coinage

Years.	1912.	1911.	1910.	1909.	1908.	1907.	1906.	1905.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	No. of Item.
1912 . . .	6,944	517	202	198	215	284	242	256	286	267	Coinage with 1901 die.	240	216	No coinage.	194	135	No coinage.	1
1911 . . .		31,333	218	225	222	296	246	218	278	268		237	217		154	115		2
1910 . . .			150	200	202	291	246	253	277	264		234	207		222	81		3
1909 . . .				684	220	314	253	223	264	242		229	209		182	91		4
1908 . . .					470	281	238	218	243	235		230	208		219	91		5
1907 . . .						843	210	202	235	222		217	197		229	112		6
1906 . . .							648	168	196	185		197	175		178	97		7
1905 . . .								663	194	149		169	154		190	119		8
1904 . . .									384	130		163	145		148	84		9
1903 . . .										890		157	128		183	103		10
1902 . . .												229	124		185	125		11
1901 . . .												505	125		170	95		12
1900 . . .													766		179	203		13
1899 . . .															833	..		14
1898 . . .															938	309		15
1897 . . .																		16
1896 . . .																		17
1895 . . .																		18
1894 . . .																		19
1893 . . .																		20
1892 . . .																		21
1891 . . .																		22
1890 . . .																		23
1889 . . .																		24
1888 . . .																		25
1887 . . .																		26
1886 . . .																		27
1885 . . .																		28
1884 . . .																		29
1883 . . .																		30
1882 . . .																		31
1881 . . .																		32
1880 . . .																		33
1879 . . .																		34

Statement I.

Results of the Rupee Census.

No. of Item.	1889.	1888.	1887.	1886.	1885.	1884.	1883.	1882.	1881.	1880.	1879.	1878.	1877.	1876.	1875.	1874.	1862.	1840 2nd Issue	1840 1st Issue	1835.
	Years of Coinage.																			
1	2·181	1·973	2·480	1·467	2·400	1·350	·633	1·704	·199	1·632	1·683	2·003	2·867	·922	·754	·545	12·921	·482	·248	·072
2	2·252	2·050	2·563	1·468	2·485	1·327	·661	1·808	·109	1·687	1·660	2·058	2·989	·968	·791	·519	13·706	·651	·306	·113
3	2·306	2·048	2·538	1·468	2·457	1·352	·689	1·802	·265	1·696	1·736	2·031	2·921	1·013	·813	·564	13·625	·737	·312	·120
4	2·268	2·084	2·596	1·495	2·493	1·400	·699	1·843	·267	1·677	1·762	2·027	2·968	1·019	·871	·637	13·81[illegible]	1·070	·471	·171
5	2·191*	2·022	2·566	1·421	2·393	1·306	·696	1·791	·213	1·681	1·685	1·936	2·843	·965	·779	·544	13·[illegible]93	1·068	·418	·140
6	2·373	2·155	2·676	1·553	2·625	1·396	·690	1·899	·224	1·771	1·774	2·040	2·989	1·003	·841	·525	14·847	1·242	·472	·089
7	2·679	2·437	3·057	1·682	2·774	1·598	·796	2·088	·269	1·927	1·951	2·281	3·335	1·097	·903	·598	1[illegible]·761	1·674	·758	·104
8	2·909	2·585	3·263	1·858	3·085	1·702	·885	2·270	·263	2·101	2·144	2·455	3·639	1·209	·960	·694	17·081	2·140	·800	·197
9	3·065	2·778	3·511	1·910	3·287	1·798	·899	2·442	·283	2·210	2·260	2·652	3·850	1·247	1·033	·747	18·130	2·892	1·079	·222
10	3,410	3·064	3·899	2·088	3·648	1·972	·933	2·707	·322	2·469	2·430	2·852	4·308	1·385	1·122	·748	20·375	4·314	1·526	·268
11	3·452	3·082	3·874	2·047	3·660	1·949	·902	2·657	·258	2·469	2·404	2·818	4·193	1·376	1·097	·702	19·743	8·567	2·108	·329
12	3·414	3·063	3·781	2·103	3·515	1·941	·923	2·634	·258	2·457	2·392	2·717	3·990	1·351	1·081	·698	19·283	11·349	3·906	·268
13	3·829	3·411	4·138	2·281	3·906	2·178	1·03	2·87	·376	2·725	2·584	2·954	4·337	1·543	1·19	·844	20·471	12·265	4·228	·438
14	3·84	3·45	4·22	2·39	3·95	2·21	1·06	2·87	·34	2·75	2·67	3·09	4·47	1·53	1·27	·85	21·26	12·69	4·10	·38
15	3·9	3·5	4·3	2·3	4·0	2·1	1·1	2·9	·4	2·7	2·6	3·0	4·5	1·4	1·2	·8	21·1	12·6	4·1	·48
16	4·0	3·6	4·5	2·3	4·0	2·0	1·1	2·9	·3	2·7	2·8	3·1	4·5	1·5	1·2	·8	20·5	12·1	3·5	·5
17	4·07	3·55	4·63	2·31	4·08	2·1	1·05	2·9	·31	2·59	2·6	3·01	4·48	1·43	1·17	·77	20·56	11·91	4·03	·77
18	3·87	3·58	4·50	2·39	4·18	2·16	1·02	2·92	·39	2·60	2·61	2·95	4·26	1·43	1·19	·79	19·85	11·23	4·4	1·54
19	4·21	3·72	4·8	2·42	4·21	2·17	1·05	2·94	·32	2·62	2·52	2·91	4·31	1·41	1·12	·75	19·52	10·99	4·0	1·47
20	4·54	3·7	5·04	2·43	4·48	2·23	1·03	3·1	·33	2·61	2·52	2·99	4·34	1·32	1·19	·91	20·23	11·4	4·01	1·44
21	4·70	4·46	5·38	2·77	5·06	2·39	·97	3·25	·4	2·92	2·82	3·23	4·9	1·49	1·21	·72	22·11	12·54	4·67	1·69
22	4·44	4·9	6·14	3·02	5·62	2·59	1·05	3·6	·37	3·13	2·97	3·53	5·22	1·61	1·38	·82	22·3	13·11	4·42	1·84
23	5·11	5·46	6·82	3·32	6·04	2·78	1·15	3·71	·63	3·37	3·26	3·66	5·44	1·65	1·39	·95	23·25	12·86	4·86	1·81
24	1·48	5·73	6·99	3·85	6·55	3·22	1·26	4·06	·38	3·49	3·33	3·88	5·67	1·75	1·4	·89	24·26	14·16	5·53	2·02
25		2·8	5·33	4·28	7·27	3·82	1·39	4·56	·37	3·89	3·59	4·03	6·11	1·79	1·41	·92	25·55	15·24	5·44	2·13
26			1·64	4·0	7·64	3·69	1·5	4·95	·34	3·98	3·9	4·47	6·63	1·87	1·67	·92	27·96	16·22	6·17	2·35
27				2·58	9·36	3· 9	1·52	5·32	·42	4·53	4·65	4·77	6·9	1·99	1·64	·99	27·81	16·16	5·46	2·31
28					1·98	4·02	1·87	6·02	·54	4·86	5·1	5·35	7·69	2·26	1·79	1·18	29·93	18·5	6·27	2·57
29						1·36	1·77	6·15	·6	5·38	5·4	5·57	7·98	2·4	1·85	1·16	31·52	18·99	6·93	2·83
30							·19	5·24	·39	5·41	5·25	6·15	8·75	2·42	1·92	1·19	32·85	19·82	7·31	3·02
31								1·19	·32	5·96	5·3	6·37	9·2	2·64	2·08	1·38	34·53	21·0	7·02	3·01
32									·13	6·31	5·78	6·88	9·71	2·78	2·24	1·45	34·14	20·71	6·88	2·99
33										2·85	5·13	7·76	10·49	3·04	2·6	1·6	34·82	21·75	6·81	3·14
34											1·06	8·26	11·49	3·35	2·58	1·67	36·67	23·3	8·04	3·57

(*a*) In 1902 coins were struck with 1901 die pending coronation of His Imperial Majesty Edward VII.
(*b*) No issues in 1899.
(*c*) No issues in 1904 to 1896.

Statement II.

No. of Item.	1895.	1894.	1893.	1892.	1891.	1890.	1889.	1888.	1887.	1886.	1885.	1884.	1883.	1882.	1881.	1880.	1879.	1878.
	Years of Coinage.																	
1	No coinage.	No coinage.	324	329	325	333	343	410	357	354	402	359	365	420	295	442	527	482
2			324	327	313	325	332	345	346	354	398	365	319	395	281	428	534	469
3			318	323	319	320	324	346	349	354	403	359	335	397	411	426	511	476
4			316	326	322	330	329	340	341	348	397	346	330	388	409	431	503	477
5			315	336	321	331	341	350	345	366	414	371	332	399	414	430	526	499
6			291	310	304	304	315	329	331	339	377	347	335	377	392	408	500	474
7			259	268	269	272	279	291	290	309	357	304	290	342	358	375	455	423
8			233	249	246	248	257	274	272	280	322	285	261	315	329	344	414	393
9			222	232	234	238	244	255	252	271	301	270	257	293	309	327	392	[illegible]
10			192	212	210	207	219	231	227	249	271	246	248	264	278	292	365	339
11			194	204	202	209	216	230	229	254	270	248	256	269	281	292	369	343
12			187	205	203	209	215	232	234	247	202	250	250	271	282	291	371	356
13			164	179	180	182	195	208	214	228	253	223	224	249	257	265	343	327
14			163	180	181	185	195	205	210	218	251	220	218	249	256	263	332	313
15			163	180	178	176	192	202	206	226	24	231	210	247	257	267	341	322
16			153	175	174	170	187	197	197	226	248	243	210	247	257	267	317	312
17			150	164	177	182	184	199	191	225	243	231	220	247	262	279	341	321
18			144	154	166	195	193	198	197	217	237	225	226	245	261	278	340	327
19			157	145	158	188	177	190	185	215	235	224	220	243	259	276	352	332
20			282	152	161	183	165	191	176	214	221	217	221	231	253	277	352	323
21				732	145	190	159	159	159	188	196	203	238	220	233	247	315	209
22					190	200	168	144	141	172	176	187	220	199	214	231	299	274
23						482	146	130	139	157	164	174	201	193	203	214	272	264
24							516	123	127	135	151	151	183	176	191	207	266	249
25								253	166	121	136	127	166	157	176	186	247	240
26									540	130	130	131	154	144	162	181	227	216
27										200	106	135	152	134	146	159	191	203
28											500	121	124	119	133	149	174	181
29												357	131	116	125	134	164	173
30													1216	136	135	133	169	157
31														601		121	167	152
32																114	153	140
33																253	173	124
34																	837	117

Statement III.

Statement showing the estimated amounts of rupees in circulation 1884—1912.

[In crores of rupees.

	Estimated total circulation.	Mr. Harrison's estimates.	Mr. Adie's estimates.
1884	109	108	106
1885	113	116	104
1886	111	104	106
1887	111		109
1888	112	109	106
1889	117	118	112
1890	120	143	121
1891	126	. .	121
1892	138	137	129
1893	136	145	132
1894	130		129
1895	128	28	128
1896	120		121
1897	120	120	116
1898	115		118
1899	112		118
1900	120		
1901	137		
1902	127		
1903	129		
1904	132		
1905	142		
1906	160		
1907	186		
1908	192		
1909	190		
1910	186		
1911	180		
1912	185		

Statement IV.

Coinage of British India Rupees since 1835.

Calendar years.	Total Coinage.	Calendar years.	Total Coinage.
	R		R
William IV, 1835 .	16,39,78,572	Victoria 1891	6,41,69,903
Victoria 1840, 1st issue	31,16,70,924	„ 1892	10,46,55,120
„ 1840, 2nd issue	76,65,60,937	„ 1893 . .	(a)7,87,30,310
„ 1862 . .	70,69,12,179	„ 1897	(b) 15,24,777
„ 1874 . .	4,35,22,400	„ 1898	(b) 75,19,413
„ 1875 . .	3,09,91,548	„ 1900	(d) 11,81,39,499
„ 1876 . .	4,09,50,301	„ 1901	(e) 10,91,35,961
„ 1877 . .	13,48,06,012	„ 1901 coined in 1902 .	(f) 9,31,39,384
„ 1878 . .	9,65,85,033	Edward VII, 1903 „ „ . .	25,000
„ 1879 . .	8,87,28,229	„ 1903	(g) 10,23,47,506
„ 1880 . .	7,21,85,518	„ 1904	(h) 16,02,78,908
„ 1881 . .	55,97,577	„ 1905	(i) 12,74,60,106
„ 1882 . .	7,14,87,567	„ 1906	(j) 26,37,50,433
„ 1883 . .	2,31,46,161	„ 1907	(k) 25,22,49,816
„ 1884 . .	4,84,88,327	„ 1908	3,09,32,498
„ 1885 . .	9,90,30,203	„ 1909	(l) 2,22,97,326
„ 1886 . .	5,20,24,532	„ 1910 . . .	1,76,88,673
„ 1887 . .	8,86,00,148	„ 1910 coined in 1911 .	58,23,286
„ 1888 . .	7,07,68,000	George V 1911 . . .	94,43,049
„ 1889 . .	7,46,68,310	„ 1912 . . .	12,43,39,354
„ 1890 . .	11,76,41,865		

(a) Includes R5,90,000 coined for the Bikaner State.
(b) On account of Kashmir and Bhopal recoinage.
(d) Includes R2,09,02,414 coined for Native States.
(e) „ 1,90,42,904 „ „
(f) „ 2,98,86,014 „ „
(g) „ 11,66,451 „ „
(h) „ 5,94,221 „ „
(i) „ 3,28,000 „ „
(j) „ 3,90,310 coined for Native States and R167 lakhs coined from Gold Standard Reserve Silver.
(k) „ 94,766 „ „ 423 „ „
(l) „ 1,01,459 coined for Native States.

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